



Study Title: Validation study of mHealth technology in HIV to improve Empowerment and healthcare utilisation: Research and innovation to Generate Evidence for personalised care (EmERGE)

Short title: EmERGE validation study

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The current protocol is for the validation study being conducted as part of the EmERGE project.

Protocols for the co-design and sociotechnical evaluation have been prepared and submitted separately for approval (ethics approval has been received for all sites).

The interlinked protocol for health economic aspects has been prepared separately and submitted for ethics approval (ethics approval received for all sites).

SYNOPSIS

Short study title: EmERGE validation study.

Objectives:

Primary:

1. To assess the impact of the mHealth platform on patient self-management and empowerment as determined by the Patient Activation Measure (PAM-13) questionnaire at month 12.

Secondary:

1. To assess the impact of the mHealth platform on patient self-management and empowerment as determined by the PAM-13 questionnaire at month 24.
2. To evaluate the acceptability and usability of the mHealth platform in stable HIV-1 patients from a technical point of view determined by a Satisfaction System Usability Scale (SUS) at months 12 and 24.
3. To assess the impact of the mHealth platform on clinical outcomes (CD4 count, viral load, percentage of patients with changes in ART) at months 6, 12, 18, 24, 30.
4. To investigate the impact of the mHealth platform on patient quality of life as determined by EQ-5D-5L and PROQOL-HIV questionnaire at months 12 and 24.
5. To investigate the impact of the mHealth platform on antiretroviral adherence quantified by adherence questionnaires at months 12 and 24.
6. To evaluate changes in patient reported outcome measures (PROMs) and experience measures (PREMs) from baseline to Months 12 and 24.

7. To measure prevalence and changes of frailty, pre-frailty and frequency of falls from baseline to Months 12 and 24.

8.. To evaluate changes in patient reported outcome in Participants Out-Of-Pocket Expenditure from baseline to Months 12 and 24

Study Design:

A quasi experimental cohort before-after study, undertaken in five European sites to validate an mHealth platform to enable self-management of HIV in patients with stable disease using a tailored HTA process, Model for Assessment of Telemedicine Applications (MAST), specifically developed for the assessment of mHealth solutions.

As site recruitment will be sequential and the recruitment period will last up to 18 months at each site, a maximum follow-up of 35 months will be undertaken. Study visits will take place at baseline defined as the time of mHealth introduction, months 6, 12, 18, 24 and 30.

Indication: *Stable* HIV infection.

Methodology:

Routine data on patient demographics, treatment and investigations including viral load, CD4, Patient Activation Measure, Quality of Life, Adherence, Successful Ageing, Patient reported outcome measures (PROMs), experience measures (PREMs) and Participants out of Pocket Expenditure questionnaires will be performed at baseline and at months 12 and 24. The Satisfaction System Usability Scale will be evaluated at month 12 and 24.

Planned Sample Size: 3808**Summary of Eligibility Criteria:**

Patients will be selected based on documented HIV positive individuals, aged at least 18 years, able to give informed consent, in possession of a smartphone, tablet, or similar technology supporting the mHealth platform, clinically stable on ART defined as receiving ART for at least 1 year and unchanged for at least 3 months, 2 consecutive undetectable viral load measures (<50 copies/ml), no current pregnancy and without any new WHO clinical stage 2, 3 or 4 events within the previous 12 months^{*,*} Adapted of 2016 WHO definitions of *stable on ART* and *clinically stable* adults.

Number of Study Centres: 5

Duration of Study: 35 Months

Criteria for Evaluation: Usability of the mHealth platform, patient self-management and empowerment, clinical safety (virological suppression maintenance, CD4 count, laboratory parameters, adverse events and adherence), patient reported outcome measures and experience measures, successful ageing and quality of life will be assessed by questionnaires and laboratory parameters.

Primary Endpoint:

- Changes in Patient Activation Measure (PAM-13) from baseline to month 12

Secondary Endpoints:

- Changes in Patient Activation Measure (PAM-13) from baseline to month 24
- Changes in System Usability Scale (SUS) from months 12 to 24
- Maintenance of virological suppression (HIV RNA <50 c/ml), percentage of patients with changes in ART from baseline to months 6, 12, 18, 24, 30.
- Changes in Quality of life (EQ-5D-5L and PROQOL-HIV questionnaire) from baseline to months 12 and 24
- Changes in adherence quantified by adherence questionnaire from baseline to months 12 and 24
- Changes in Patient Reported Outcome Measures (PROMs) and experience measures (PREMs) from baseline to months 12 and 24.
- Prevalence of frailty, pre-frailty and frequency of falls from baseline to Months 12 and 24.
- Changes in patient reported outcome in Participants Out of Pocket Expenditure from baseline to months 12 and 24.

List of Abbreviations and Definition of Terms

ACTG – Aids Clinical Trial Group

AE- Adverse Event

AIDS – Acquired Immune Deficiency Syndrome

API - Application Programming Interface

ART - Anti Retroviral Therapy

BHIVA – British HIV Association

CD4 – CD4 cell (T-helper cell) count – a marker of immune function

CRF – Case Form Report

CSW – Commercial Sex Worker

CTU – Clinical Trial Unit

EACS – European AIDS Clinical Society

EATG - European AIDS Treatment Group

EC - European Commission

eCRF – Electronic Case Form

EU – European Union

EEA – European Economic Area

FRAIL - Fatigue, Resistance, Ambulation, Illnesses, & Loss of Weight (questionnaire)

GCP – Good Clinical Practices

GDPR – General Data Protection Regulation

HIV – Human Immunodeficiency Virus

HTA – Health Technology Assessment

ICT – Information and Communications Technology

IDU – Injecting Drug User

IP – Intellectual Property

ITU – Intensive Therapy Unit

ITT – Intent to Treat

MAST - Model for Assessment of Telemedicine applications

mHealth – mobile Health technologies

MREC – Medical Research Ethics Committee

MSM – Men who have Sex with Men

PAM – Patient Activation Measure

PREMs – Patient Reported Experience Measures

PROMs – Patient Reported Outcome Measures

QALY – Quality Adjusted Life Year

RCT – Randomised Controlled Trial

SAE – Serious Adverse Event

SME – Small or Medium Enterprise

SUS – Satisfaction System Usability Scale

TRL – Technology Readiness Level

UNAIDS – United Nations program on HIV/AIDS

US – United States (of America)

VL – Viral Load

WHO – World Health Organisation

Table of contents

1. BACKGROUND INFORMATION	11
1.1 Introduction	11
1.2 Background.....	11
1.3 Rationale.....	11
2. OBJECTIVES	14
3. STUDY DESIGN	15
3.1 Endpoints.....	15
3.2 Study design	15
4. STUDY POPULATION.....	16
4.1 Number of subjects and subject selection	16
4.2 Inclusion criteria	17
4.3 Exclusion criteria	17
4.4 Sample size calculation.....	18
4.5 Withdrawal of subject and discontinuation criteria	19
4.6 Replacement of individual subjects after withdrawal.....	20
4.7 The end of the study	20
5. STUDY INTERVENTION	21
5.1 Mobile Application description	21
5.1.1 My Medicines	22
5.1.2 My Results	22
5.1.3 My Appointments.....	23
5.1.4 Activities	23
5.1.5 My Account	24
5.2 ART provision and treatment compliance	24
6. VISIT SCHEDULE & PROCEDURES.....	25
6.1 Assessments at each visit	25
6.1.1 Baseline	25
6.1.2 Study Visits: month 6, month 18 and month 30 (all visits \pm 30 days visit window).....	26
6.1.3 Study Visits: month 12 and month 24 (all visits \pm 30 days visit window)	26
6.2 Virological failure.....	27
6.3 Additional Visits.....	27
6.4 Early Termination Visit	27
7.SAFETY REPORTING.....	28
7.1 DEFINITION OF RELATED ADVERSE EVENTS (RAE).....	28
7.2 DEFINITION OF SERIOUS ADVERSE EVENTS (SAE).....	28
7.3 COLLECTION AND FOLLOW UP OF SERIOUS ADVERSE EVENTS.....	29
8. ETHICAL CONSIDERATIONS	
8.1 Recruitment and consent	29

9. STATISTICAL ANALYSIS	29
9.1 Criteria for evaluation	29
9.2 Statistical Methods	29
10. DATA HANDLING	31
10.1 Recording of Data	31
10.2 Source Documentation and Study Records.....	31
10.3 Archiving and storage of data.....	31
11. QUALITY CONTROL	31
11.1 Monitoring Arrangements	31
11.2 Quality Assurance	32
12. ADMINISTRATIVE PROCEDURES	32
12.1 Ethics Approval.....	32
12.2 Regulatory Notification	32
12.3 Publication Policy	33
12.4 Amendments.....	33
13. STRUCTURED RISK ANALYSES	33
13.1 Data Protection and Information Governance.....	33
13.2 Barriers to Implementation	33
14. PROTOCOL SIGNATURE PAGE	35
15. REFERENCES.....	36
Appendix 1: Study Flowchart.....	39
Appendix 2: PAM (Insigna)	41
Appendix 3: Quality of Life questionnaires - EQ-5D-5L and PROQoL HIV	42
Appendix 4: SUS.....	48
Appendix 5: Adherence Questionnaire (MASRI)	49
Appendix 6: PREM & PROM questionnaire.....	50
Appendix 7: Successful Ageing questionnaire	
Appendix 8: Participants Out of Pocket Expenditure	55
Appendix 9: Translation cognitive Interviewing for HIV-specific PROM	
Appendix 10: Ethical Considerations	87

1. BACKGROUND INFORMATION

1.1 Introduction

HIV as a chronic disease

AIDS was first described as a clinical entity just over 30 years ago in 1981^{1,2} rapidly followed by discovery of the Human Immunodeficiency Virus (HIV) in 1983^{3,4} and the ability to test for infection with an antibody test in 1984⁵. Although some progress was made with the early discovery and use of antiretroviral (ART) drugs, these were initially used as single agents or as dual therapy, and clinical trials showed limited short-term benefit only with rapid emergence of viral resistance to available agents^{6,7}. The routine introduction of Highly Active AntiRetroviral Therapy (HAART) resulted in a rapid improvement in patient outcome and reduction in mortality, observed both in the US and in Europe^{8,9}. In the majority of the European Union, provided that access to testing is available before irreversible disease progression has occurred, and assuming access to ART and linkage to treatment and care, the life expectancy for an HIV positive individual is now very similar to the general population^{10,11}.

The population living with HIV is ageing and whilst studies suggest higher prevalence of age-related issues including frailty, falls, and multi-morbidity, data from Europe across the age range are lacking (refs).

1.2 Background

Current Model of HIV Care

Due to the changing nature of HIV medicine, its rapidly evolving treatments, and the need for performance and interpretation of relatively complex laboratory tests, HIV service provision in the vast majority of EU countries is performed by specialists – usually based in secondary or tertiary care; whilst in some EU countries (e.g. Germany), outpatient management may be provided in a primary care setting, this is still performed by specialists in HIV rather than by generalists. In order to optimally follow-up patients to achieve these aims, routine monitoring and specialist assessment is recommended at 3-6 monthly intervals^{12, 13}.

Current model is unsustainable

Data from the majority of EU countries show that the number of people newly infected with HIV (incidence) is at best stable and in many countries continues to increase^{14,15,16}. The result of this ongoing transmission coupled with improved prognosis is that the numbers of patients with chronic HIV requiring long-term follow-up continues to increase¹⁴. This increase is seen across all five EU countries where the clinical sites in this project are based. Each of the clinics involved in this project report an increase in the size of their clinic cohorts of between 5-10% per annum.

1.3 Rationale

mHealth in the management of chronic diseases

It is estimated that 86% of EU deaths are now due to a chronic disease¹⁷. The burden of morbidity and disability is also increasing and disproportionately affecting disadvantaged communities across the EU¹⁸. It

has recently been reported that there are over 97,000 health related apps on the market with 70% targeting fitness and well-being. Apps are used for helplines, improving compliance, appointment reminders, community mobilization, health promotion, raising awareness, telemedicine, surveillance, patient monitoring, information initiatives, decision support system and patient records¹⁹. Whilst there is interest and enthusiasm for the use of apps, they have yet to enter mainstream healthcare provision²⁰.

In particular mHealth interventions have been studied in diabetes^{21,22,23,24}, chronic obstructive pulmonary disease^{25,26,27} and congestive heart failure^{28,29,30}. This research has shown a reduction in hospital readmission rates, length of hospital stay in patients with chronic cardiac disease^{31,32,33} and an improvement in quality of life^{34,35,36}.

mHealth in the treatment of HIV infection

A recent review article³⁸ on mHealth and HIV (2001-2011) identified only 62 of 5868 (1.1%) articles on mHealth and HIV which were sufficiently robust to warrant further consideration. The best evidence for the use of mHealth in HIV lies in the use of text message reminders for clinic appointments (thereby improving linkage with care) and for improved treatment adherence³⁹. Notably none of the published articles utilized mHealth in empowering patients and improving healthcare utilisation amongst stable patients. Indeed firstly the review concluded that the science and practice of mHealth in the setting of HIV is in its early stages, and secondly an accompanying presentation identified key factors for success as including: local leadership, most vulnerable populations, human centred design, engaged end users, reusability and interoperability⁴⁰.

An updated systematic review performed as part of the EmERGE project shows some progress in the last three years but concludes that data is still lacking – particularly around the use of mHealth technologies⁴¹

Concerns about the evaluation of mHealth technologies

The WHO¹⁹ concluded that although the evidence base for mHealth is growing, major research gaps remain and existing research has not adequately evaluated mHealth interventions and has not been able to provide sufficient evidence on health impacts. Only 12% of countries within the WHO member states had formally evaluated any mHealth initiative although the majority had implemented mHealth in some form. The figure for evaluation was greater in high income countries but still low at 23%¹⁹.

This concern is echoed by a report by the European Commission that demonstrated a lack of evidence for effectiveness of many mHealth interventions, concerns about research methodology, techniques and standards of economic analyses. As a result of these concerns they have initiated a Model for the Assessment of Telemedicine Applications (MAST) which is transferable to the evaluation of mHealth technologies³⁷.

EmERGE will develop a widely usable mHealth platform for the treatment and care of HIV in five European clinical sites and evaluate the value of the platform using the EU recommended MAST methodology before taking the platform to market.

The EmERGE project involves three major parallel and integrated work-streams.

These work-streams will be addressed by a series of work packages (WPs) which will cover the following aspects:

Work-stream 1 - Development and integration of the mHealth platform

WP1 – Situational Analysis and Background Assessment

WP2 - Co-Design and Sociotechnical Evaluation

WP4 – Platform Development, Testing and Deployment

Work-stream 2 – Validation Study

WP3 – Health Economics

WP5 - Implementation and validation study

WP6 – Quantitative Patient Outcomes

Work-stream 3 – Innovation, Exploitation and Dissemination

WP7 – Innovation and Exploitation

WP8 – Dissemination

WP9 – Project Management

2. OBJECTIVES

PRIMARY OBJECTIVE

- To assess the impact of the mHealth platform on patient self-management and empowerment as determined by the Patient Activation Measure (PAM-13) questionnaire at month 12

SECONDARY OBJECTIVES

1. To assess the impact of the mHealth platform on patient self-management and empowerment as determined by the PAM-13 questionnaire at month 24.
2. To evaluate the acceptability and usability of the mHealth platform in stable HIV positive patients from a technical point of view determined by a System Usability Scale (SUS) at months 12 and 24.
3. To assess the impact of the mHealth platform on clinical outcomes (CD4 count, viral load, percentage of patients with changes in ART) at months 6, 12, 18, 24 and 30.
4. To investigate the impact of the mHealth platform on patient quality of life as determined by EQ-5D-5L and PROQOL-HIV questionnaire at months 12 and 24.
5. To investigate the impact of the mHealth platform on antiretroviral adherence questionnaire at months 12 and 24.
6. Changes in Patient reported outcome measures (PROMs) and experience measures (PREMs) from baseline to Months 12 and 24.
7. To measure prevalence of frailty, pre-frailty and frequency of falls from baseline to Months 12 and 24
8. To assess changes in patient reported outcome in Participants Out of Pocket Expenditure from baseline to Months 12 and 24

3. STUDY DESIGN

3.1 Endpoints

Primary Endpoint:

- Changes in Patient Activation Measure (PAM-13) questionnaire at baseline to months 12.

Secondary Endpoints:

- Changes in Patient Activation Measure (PAM-13) questionnaire at baseline to months 24.
- Changes in System Usability Scale (SUS) from months 12 to 24.
- Maintenance of virological suppression (HIV-1 RNA <40 c/ml), percentage of patients with changes in ART from baseline to months 6,12,18, 24 and 30.
- Changes in Quality of life questionnaires from baseline to months 12 and 24.
- Changes in adherence quantified by adherence questionnaire from baseline to months 12 and 24.
- Changes in Patient reported outcome measures and experience measures (PREMs) from baseline to Months 12 and 24
- Prevalence of frailty, pre-frailty and frequency of falls from baseline to Months 12 and 24
- Changes in Participants Out of Pocket Expenditure measures from baseline to Months 12 and 24

3.2 Study design

A quasi experimental cohort before-after study, undertaken in people living with HIV in the following five European sites:

- | | |
|------------------------------|---|
| • Antwerp (Belgium): | PRINS LEOPOLD INSTITUUT VOOR
TROPISCHE GENEESKUNDE (ITM) |
| • Barcelona (Spain): | FUNDACIO PRIVADA CLINIC PER A LA
RECERCA BIOMEDICA (FCRB) |
| • Brighton (United Kingdom): | BRIGHTON AND SUSSEX UNIVERSITY
HOSPITALS NHS TRUST (BSUHT) |
| • Lisbon (Portugal): | CENTRO HOSPITALAR DE LISBOA
CENTRAL, EPE (CHLC) |
| • Zagreb (Croatia): | KLINIKA ZA INFektivNE BOLESTI DR.
FRAN MIHALJEVIC (KIB) |

For up to 35 months, stable HIV positive individuals will be followed-up using a reduced visit pathway incorporating an mHealth platform. The platform will provide users with mobile device applications which interface securely with relevant medical data and facilitate remote access to healthcare providers.

As the recruitment of patients will be sequential at the different sites (two monthly intervals between each), the first patients included at the first site, will have a longer follow-up than the last one. The minimum length of follow-up will be 12 months and the maximum 35 months.

Study visits will take place at baseline, month 6, 12, 18, 24 and 30. Patients will visit the hospital to perform a baseline face-to-face visit. At this baseline visit, the training how to use the app will be done and a contact sheet with the telephones numbers and e-mails to contact in case of any doubt/problem will be provided.

At six months the patient will attend for bloods tests as per standard of care. The results will be checked by a clinician and then be pushed through to the patient's mobile phone if the results are unremarkable. If there is an abnormality of concern the patient will be contacted to arrange appropriate follow up (as per standard of care). Visits at 18 and 30 months will be conducted in a similar fashion.

At 12 months and 24 months the patient will be seen by their clinical team in person (or virtually if normally cared for within the Barcelona Virtual Hospital). Patients are therefore seen annually by their clinician.

Routine investigations at each visit will be as per standard of care for that site and may include haematology, biochemistry, viral load, CD4. Patient Activation Measure, Quality of life, adherence, successful ageing, PROMs, PREMS and Participants out of Pocket Expenditure questionnaires will be performed at baseline and at months 12 and 24. The System Usability Scale will be evaluated at month 12 and 24.

Prior to the introduction of the HIV-specific PROM translation cognitive interviewing will take place as described in Appendix 9.

4. STUDY POPULATION

4.1 Number of subjects and subject selection

Site recruitment will be sequential with two monthly intervals between each sites. The recruitment period will last up to 18 months.

For the inclusion of the subjects, clinicians, in the five participant centres, will select potential patients fulfilling the inclusion criteria. If the patient voluntarily accepts and signs an informed consent, the baseline visit will take place.

Subjects from Brighton or Barcelona could either come from the traditional face-to-face model of care or from eHealth models that are already in operation at those sites. In the case of Brighton an email service

for patients living with stable HIV substitutes the 6 month visit and patients are seen face to face once a year by their HIV physician with results checked and emailed to them at the interim 6 monthly visit. In Barcelona patients cared through Virtual Hospital (an internet based home-care system) are visited each 6 months by videoconference or by telephone.

We will purposively sample to ensure that of these recruits, vulnerable sub-populations will be represented as follows (noting that these are proposed percentages of the total EmERGE cohort rather than specific to each site):

- Female: at least 25%
- Aged >50 years: at least 10%
- Injecting Drug Users: at least 10%
- Non-national at study site: at least 20%

The Clinical Trial Unit in Barcelona will monitor the inclusion of these subpopulations during the study.

4.2 Inclusion criteria

Patients who meet all of the following criteria are eligible for this study:

1. Documented HIV infection
2. Aged at least 18 years old
3. Able to give informed consent
4. In possession of a smartphone, tablet, or similar technology supporting the mHealth platform
5. Clinically stable on ART

Defined as receiving ART for at least 1 year and unchanged for at least 3 months, 2 consecutive undetectable viral load measures (<50 copies/ml), no current pregnancy and without any new WHO clinical stage 2, 3 or 4 events within the previous 12 months.

4.3 Exclusion criteria

Patients meeting 1 or more of the following criteria cannot be selected:

1. Aged less than 18 years
2. Pregnant
3. Participating in a clinical trial or receiving an investigational medication
4. Unable to comprehend the patient information sheet
5. Unable to comprehend the instructions for using the mHealth platform
6. Considered for any other reason by their regular physician to be unsuitable for study participation.

4.4 Sample size calculation

The sample size proposed is 3,808 recruits, divided into the 5 participant centres:

	Cohort size (end 2014)	Sample size / site
Institute of Tropical Medicine Antwerp (ITM) BE	2547	637
Fundació Privada Clinic per a la Recerca Biomedica (FCRB) ES	4757	1189
Brighton and Sussex University Hospitals NHS Trust (BSUHT) UK	2241	560
Centro Hospitalar Lisboa (CHLC) PT	4846	1211
Klinika za Infektivne Bolesti (KIB) CR	843	211
	TOTAL	3808

An update to Version 5.0 of the protocol was made in April 2018. At this time it should be noted that all sites started recruitment later than anticipated and additionally FCRB and CHLC revised their target achievable to 800 each prior to study start. The revised sample size target is therefore 3008 which still meets the power calculation for the primary outcome.

The proposed number of recruits to the study has been based upon 4 different factors:

- A formal sample size calculation: given the importance of patient related outcomes and empowerment to the overarching aims of the project, we have undertaken a formal sample size calculation based upon patient empowerment. We have used one of the currently accepted measures of patient empowerment: the patient activation measure (PAM-13) We consider a move up one level of the Patient Activation Measure to be clinically significant. With power and threshold of significance set at 90% and 1% respectively, in order to detect a change from 30% patients in levels 1-2 down to 25%, approximately 2400 pairs of observations are required, assuming, very conservatively, no correlation between baseline and follow-up PAM score levels. This sample size will give us greater statistical power to explore the change in PAM in subgroups according to level at baseline.
- Numbers needed for a formal health economic assessment: although there is insufficient pre-existing data to inform a formal power calculation of mHealth in HIV, it is recognized in the broader telemedicine literature that numbers of patients within evaluation are frequently too small. Additionally, mHealth studies in the context of HIV have previously had underrepresentation of vulnerable sub-groups. We have therefore aimed for a large sample size, and will monitor for recruitment within specific sub-groups, and will purposively sample from those groups if recruitment numbers fall below pre-specified levels. Input from our expert health economic partners confirms that the planned sample size is sufficient to inform a robust health economic analysis.

- Numbers needed to measure acceptability within HIV clinical cohorts: provisional uptake from the two clinical sites where mHealth/telemedicine has already been introduced suggests a high level of acceptability. In the Barcelona RCT, all places within a relatively small study were rapidly filled. We have therefore taken a pragmatic approach and planned for a large sample size (based upon predicted levels of uptake; see below) in order to inform quantification of acceptability within a routine clinical cohort, thereby additionally enabling calculation of cost-function.
- Numbers predicted from 'pilot' experience: Data from large EU cohorts, including the sites involved within this programme, suggest rates of retention in care of over 80%. Of these, approximately, 85% would be anticipated to be receiving ART, of whom >85% would be expected to be undetectable and stable on therapy. Provisional data from the experience of the email service in Brighton, and the recently described experience of hand-held electronic patient records across multiple sites within the UK, would suggest an overall acceptance rate of 20-35% would be anticipated within a typical HIV outpatient cohort. In discussion amongst the principal investigators at each of the clinical sites participating in this project, we have anticipated an overall acceptance rate of 25% of the total cohort.

Therefore, our original projected sample size is: 25% of 15,234 = 3,808 recruits (revised 3008).

Individuals joining the study will be asked whether they would be happy to be contacted to take part in individual interviews and / or workshops to discuss their experience of the EmERGE pathway. This includes individuals who subsequently withdraw from the study where reasons for this will be captured. This work will be led by WP2 – sociotechnical evaluation. Patients will be contacted by a member of the research team either by text message, email, EmERGE app notification or via a telephone call. Whilst consent to be contacted is covered under this protocol; separate consent will be taken for the WP2 interviews and workshops – for which separate ethic approval has been sought and received at each site.

Individuals who decline to take part in the EmERGE study will also be asked whether they would be willing to be contacted for an interview and / or workshop to understand their reservations. Patients will be contacted by a member of the research team either by text message, email, EmERGE app notification or via a telephone call.

All reasons for non-eligibility and reasons for declining the EmERGE study will be captured.

4.5 Withdrawal of subject and discontinuation criteria

A subject is free to withdraw from the study at any time. In addition, the Investigator may decide, for reasons of medical prudence, to remove the patient from the study.

All patients who discontinue this study will be followed up and requested to attend for study visits up until month 12. If this is not possible or acceptable to the subject or Investigator, the subject may be withdrawn from the study and the reason for withdrawal recorded in the Case Report Form.

If any participants experience virological failure (two consecutive HIV-RNA more than 50 copies/ml), the sponsor must be informed (within 72 hours of the site becoming aware) and a virological failure form completed. The participants should be managed in accordance with local processes; participants will be followed up and asked to attend all study visits.

Participants may be discontinued in the following instances:

1. If the subject withdraws their consent.
2. If the investigator considers in the interest of the subject, that it is best for them to stop the study.
3. The subject fails to comply with the protocol requirements or fails to cooperate with the investigator.

The date and reasons for stopping the study will be clearly stated on the subject's CRF and source document. Every attempt should be made to arrange follow up visits for subjects who are withdrawn from study. This visit should involve assessments as outlined in section 6.1

A female subject who becomes pregnant during the study must immediately stop the study.

Subjects withdrawing from the study may be replaced if considered necessary by the Coordinating Investigator.

All the patient that discontinue the study can continue using the app, but not as a part of this study.

4.6 Replacement of individual subjects after withdrawal

Patients who do not use the mHealth application (for any reason) will be asked to stay in follow up for safety and immunological assessments according to the protocol where possible. In case of an adverse event, subjects will be followed until the adverse event has been resolved or stabilized. Safety data of these patients will be collected according to the protocol where possible.

The date that the participant is discontinued from the study and the reason will be recorded in the case record form.

Only patients who have not used the mHealth will be replaced. These patients will be replaced, preferably by a patient at the same site.

4.7 The end of the study

The end of the study is defined as the date of the last visit of the last subjects undergoing the study. The duration of the study for patients recruited at the first month at the first clinical site will be up to 35 months.

5. STUDY INTERVENTION

Patients recruited to the study pathway will be seen routinely by their clinician once a year with interim results (6 months) checked by a clinician and pushed through to an mHealth platform on their mobile phone with other information.

Clinicians / Clinics retain responsibility for the care of their patients at their own site.

Patient data remains the property of the clinical site / hospital.

No patient identifiable information is transmitted and all other data is encrypted to the required national standard for healthcare information.

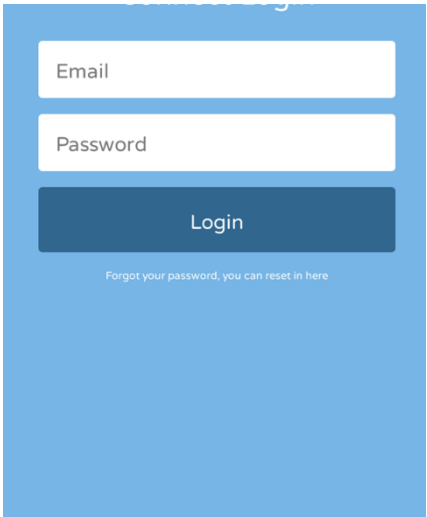
No patient identifiable information will be transmitted outside of the hospital network. All data that is transmitted is encrypted at rest and in motion, using 256bit AES encryption and is sent over a secure socket layer connection (SSL). This is an EU (and in fact worldwide) recommendation for patient identifiable information, we are using it even though the patient information the web application is sending is not patient identifiable.

Data regulations and processes have been reviewed for each country and can be found in Appendix 10.

5.1 Mobile Application description

The mHealth platform will be integrated with clinic ICT systems and will be used to reduce face-to-face appointments in patients living with stable HIV. A co-design process has taken place to identify functions for the mHealth application – additions will be subject to the co-design process and a change request process within the EmERGE project.

First of all patient users will be issued a password at the point of registrations with the Web Application. There should be functionality present to securely reset the user’s password. This should be achieved via email-level token authentication.



The dashboard should provide a single point of entry for a Patient User, allowing them to easily see all options that are available within the Mobile Application.

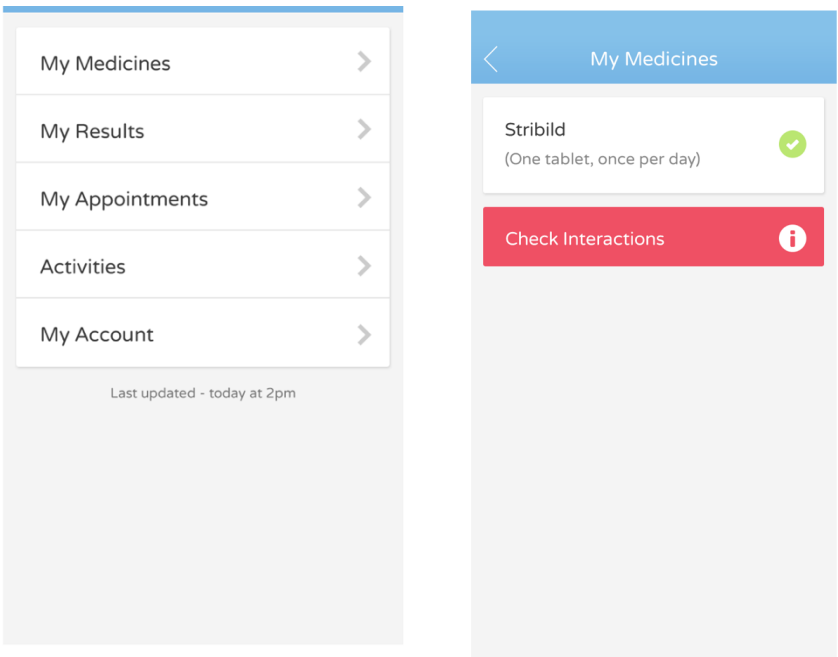
This should include links to:

- 1. **Medication List**
- 2. **Blood Test Results** (*current and historical*)
- 3. **Appointments**
- 4. **Activities**
- 5. **Healthcare Information**
- 6. **Account Information**

5.1.1 My Medicines

This view will show a list of current medications, including dose and frequency. Information about each medicine should be easy to understand for the Patient User, avoiding the use of technical terminology.

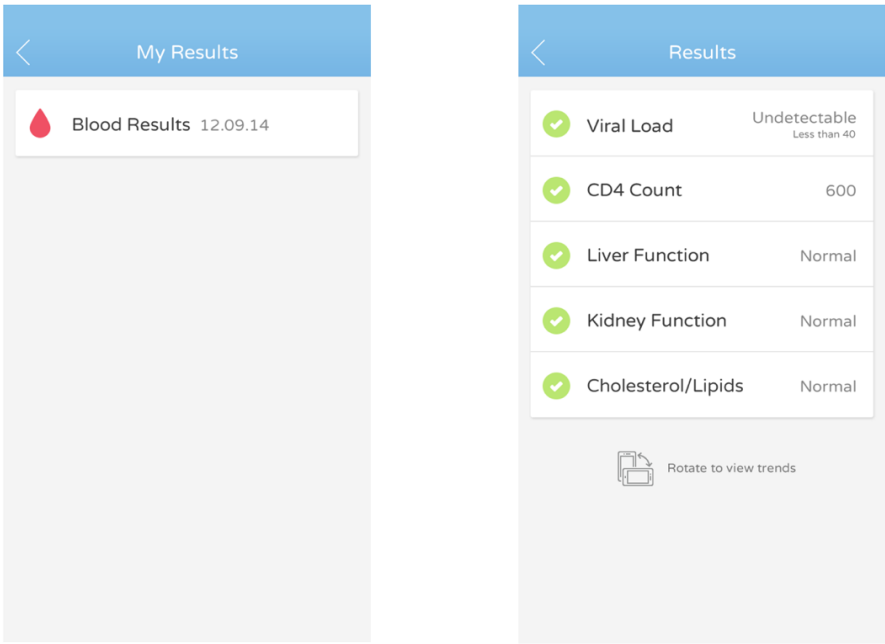
Data for this page is stored locally within the Mobile Application having been retrieved through the Messaging Service.



5.1.2 My Results

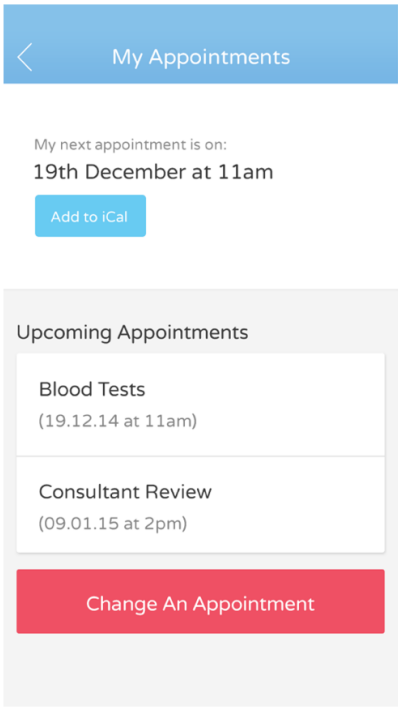
Blood test result information, both current and historical, will be displayed in this view. This data is not stored locally on the device, but is retrieved from the Messaging Service. Only blood test information authorised from the Web Application (following a 'Virtual Appointment') will be visible.

All blood test information should be easy to understand for the patient, avoiding the use of technical terminology. Users should be able to rotate their mobile devices to see trends for each result.



5.1.3 My Appointments

In this view the Patient User should be able to see information about upcoming appointments. This data should be retrieved from the Messaging Service. Users should be able to add appointment information to their mobile device calendars, and set reminders/alerts.



5.1.4 Activities

The Activities view acts as a comprehensive log of all data transmissions that have been received by the Mobile Application from the Messaging Service.

These should be easy to understand for the Patient User, and include the following localized timestamps:

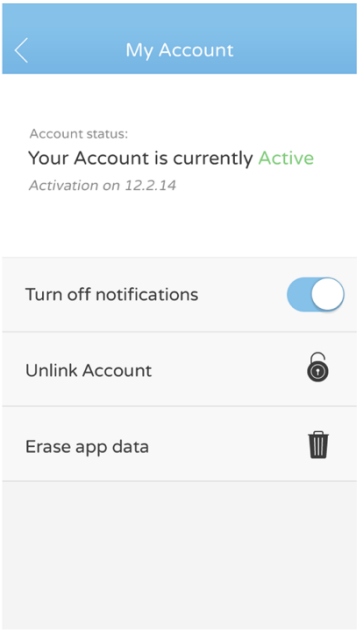
- 1. Appointment Updates
- 2. Blood Test Result Updates
- 3. Medication Updates
- 4. Access/Registration Updates

5.1.5 My Account

This view provides the Patient User with a comprehensive overview of the current status of their account within the EmERGE platform. It should display whether their account is active or inactive, as well as the date of activation.

Patient Users should have options to:

- 1. Turn off mobile-wide notifications
- 2. ‘Unlink’ their account from the Messaging System (resulting in the account becoming inactive in the web application)
- 3. Erase application data



5.2 ART provision and treatment compliance

During the study, ART provision to the participants will continue as usual and by the same pathways at each clinical site.

6. VISIT SCHEDULE & PROCEDURES

6.1 Assessments at each visit

The schedule of assessments is summarised in the study flow chart in Appendix 1. From the Baseline visit through to follow up, visits may take place +/- 30 days from that specified at the discretion of the Investigator. All patient data (demographic, medical history, clinical data) will be collected on a Case Report Form (CRF) web based, in an anonymous way.

This CRF will have two subsystems, for the professional and for the patient.

At the professional subsystem web, only the clinician responsible of each site will have access. Every clinician will complete the CRF with all data that are necessary for the follow up.

6.1.1 Baseline

The baseline visit will be face-to-face at the hospitals.

Subjects will be provided with written information about the study in the form of a subject information sheet and will be allowed adequate time for questions and to consider the study before agreeing to participate. It will be the responsibility of the investigator or co investigator or as appropriately delegated, to obtain written informed consent prior to undertaking any procedures detailed in the protocol.

The investigator or designee must provide adequate explanation of the aims, methods, objectives and potential hazards of the study. It must also be explained to the subject that they are free to refuse or withdraw from the study for any reason without detriment to their future care or treatment.

After signing the informed consent, the patient will be assigned a numeric code of 6 numbers, based on the site code (2 letters) and the number of patients recruited at the site including the current patient (4 digits).

Code of site: ZA Zagreb, AN Antwerp, LN Lisbon, BR Brighton, BA Barcelona

Ex: First patient of Zagreb ZA+0001= ZA0001

The patient mobile will be registered with a code too. The Emerge application will be installed and the patient will decide the login and password to get access.

In this baseline visit, the training how to use the Emerge app will be done and a contact sheet with the telephone numbers and mails to contact in case of any doubt/problem will be provided.

Evaluations and procedures will be carried out as per standard of care at each site.

Patients will answer different questionnaires in this visit, for evaluating the empowerment that he/she has concerning the self-management of HIV infection, quality of life, adherence to medication, PROMs, PREMS, successful ageing and out of pocket expenditure.

- Patient Activation Measure-13 questionnaire (Appendix 2)
- Quality of life (EQ-5D-5L and PROQOL-HIV questionnaires) (Appendix 3)
- MASRI Adherence questionnaire - (Appendix 5)
- Patient reported outcome measures and experience measures (Appendix 6)

- Successful ageing questionnaire (Appendix 7).
- Participants Out of Pocket Expenditure (Appendix 8)

All these questionnaires will be answered online by the patients and automatically recorded into the eCRF.

All questionnaires will be translated to local language and in French and Dutch for Antwerp.

ART provision to the participants will continue as frequent, as usual and by the same pathways at each clinical site.

6.1.2 Study Visits: month 6, month 18 and month 30 (all visits \pm 30 days visit window)

This is an mHealth appointment. After the baseline visit and having registered his own mobile device, patients will receive a message informing when he/she should perform the blood test extraction of Month 6. Approximately two weeks after this blood extraction, participants will receive a message notifying blood test result updates and he/she can check these results in "My results". Moreover, patients will receive a message confirming their blood results, the timing of their next appointment and who to contact in case of queries.

As the frequency of antiretroviral drugs provision and where this medication is supplied maybe different among the different sites, a country specific and wider description regarding the medication delivery is available in the information sheet for the patients.

At this visit the following evaluations and procedures are to be performed as per local standard of care:

- Laboratory evaluations: haematology and biochemistry
- HIV RNA viral load

Follow-up visits of months 18 and 30 will be performed only for early recruited patients. Patients recruited at the last site and during the last dates of the recruitment period will have only 12 months of follow-up. The evaluations and procedures completed at month 18 and month 30 will be the same as the ones of month 6 visit.

Individuals have from baseline a contact sheet with the telephone numbers and mails to contact in case of any doubt/problem regarding technical or intercurrent illnesses.

6.1.3 Study Visits: month 12 and month 24 (all visits \pm 30 days visit window)

This visit will be again face-to-face, or by videoconference in the case of patients coming from Hospital Virtual at Barcelona. This other existing e-health way of consultation (videoconferences) will be integrated and performed at month 12 and month 24 by the mobile application. In these visits, the patient will do the same evaluations and procedures undertaken at the baseline visit, plus a usability and satisfaction (SUS) questionnaire evaluating the App (Appendix 4). The SUS questionnaire assesses different aspects (access,

the need for training, reliability, usability, acceptance, usefulness and satisfaction) of the mobile application with a five-point Likert scale, from 1 for the most negative appraisal (“Not appropriate/Totally disagree”) to 5 for the most positive one (“Very appropriate/Totally agree”). Patients and investigators using the app will fill out a SUS questionnaire at month 12 and 24.

6.2 Virological failure

Virological failure is defined as two consecutive measurements of plasma viral load above 50 copies/ml separated at least by 2 weeks during the follow-up. In case of virological failure a resistance study will be conducted as per local practice. Clinical procedure related virological failure (e.g. discontinuation of current therapy, rescue medication) will be performed at the investigator discretion.

In case of a likely virological blip, (single VL 50-200 copies/ml), a message will be sent booking an appointment to repeat VL in 2 weeks. At the same appointment, an additional visit will be performed where the doctor/nurse will ask about adherence, concurrent medications, recent illness, vaccination, and food intake.

After 2 weeks, if repeat VL is below 50 copies, a message will be sent to the patient saying to continue within pathway with next visit in 6 months.

If repeat VL > 50 copies, a message will be sent booking an appointment to perform an early termination visit with the doctor, to ongoing management as EACS or local guidelines.

6.3 Additional Visits

Additional visits and evaluations will be documented in the CRF.

6.4 Early Termination Visit

In the case of early termination, every attempt will be made to ensure the subject has a termination visit. At this visit, evaluations and procedures will be carried out as per standard of care at each site. The patients will answer the questionnaires:

- Patient Activation Measure questionnaire
- Quality of life (EQ-5D-5L and PROQOL-HIV questionnaire)
- Adherence quantified by adherence questionnaire
- PROMs / PREMs questionnaire
- Successful ageing questionnaire
- SUS questionnaire
- Participants Out of Pocket Expenditure

Patients will be requested to attend for remaining visits and complete study assessments to month 12 or 24 even if they are no longer using the mobile application.

7. SAFETY REPORTING

7.1 Definition of Related Adverse Events (RAE)

An adverse event (AE) is any untoward occurrence to the health of a patient or cohort study subject and which does not necessarily have a causal relationship with the follow up of the study.

It may be a new concomitant disease, a worsening of a concomitant disease, an injury, or any concomitant deterioration in the patient's health status, including laboratory values, regardless of etiology. Any medical condition that was present before the study treatment and that remains unchanged or improves should not be considered or recorded as an AE. A worsening of that medical condition will be considered as an AE.

A related adverse event (RAE) is any adverse event that can be classed as related to the use of the mHealth technology or events that would have been detected if the subject had made a face-to-face consultation instead of the remote appointment.

7.2 Definition of Serious Adverse Events (SAE)

This is a quasi experimental cohort before-after study with the aim to evaluate mHealth technology in stable HIV patients. The purpose of the study is not to investigate any pharmaceutical or investigational product. The adverse events that will be collected will be only the Serious Adverse Event (SAE)

According to Good Clinical Practice (GCP), a serious adverse event is any untoward medical occurrence that:

- i) Results in death
- ii) Is life threatening
- iii) Requires inpatient hospitalization or prolongation of existing hospitalization.
- iv) Results in persistent or significant disability/ incapacity
- V) Results in congenital anomaly/birth defect

Only admission when the patient stays overnight in the hospital should be considered hospitalization. The following situations do not meet the criteria for a SAE:

- i) if hospitalization or prolongation of hospitalization is part of the routine procedure at the site (such as withdrawal of a stent after surgery)
- ii) if hospitalization was scheduled prior to patient entry in the study
- iii) if hospitalization was scheduled for a preexisting condition that has not worsened

7.3 Collection and follow up of Serious Adverse Events

SAEs and the RAEs assessed by the investigators as SAEs observed by the Investigator, or reported by the subject, and any remedial action taken, will be recorded in the subject's CRF and should be verifiable in the subject's notes throughout the study.

All subjects experiencing SAEs, must be monitored until they are resolved symptoms or the subject's participation in the study ends (i.e. until the final CRF is completed for that subject).

8. ETHICAL CONSIDERATIONS

8.1 Recruitment and consent

Patients will be informed verbally by their treating doctor and in writing via the patient information form. All relevant information will be reported to the participants adapted to their level of understanding. Consent will be received by individuals who are appropriately trained to do so.

9. STATISTICAL ANALYSIS

9.1 Criteria for evaluation

All recruited patients will be included in the intent-to-treat (ITT) population. Continuous normally distributed variables will be described by their means and standard deviations, skewed continuous variables by their medians, interquartile ranges, minimums and maximums. Categorical variables will be summarised by their frequencies and percentages.

The per-protocol population will include all patients from the ITT population except those withdrawing, or withdrawn, from the study or discontinuing the study for reasons other than technical problems with the mobile application or changes in inclusion or exclusion criteria. Every effort will be made to minimize the amount of missing data in the study. Sensitivity analyses, including analysis of multiply imputed data, will be undertaken to assess the robustness of the conclusions to the missing data.

Study failure includes consent withdrawal, changes in inclusion or exclusion criteria (example: loss of stability on ART due to virological failure; loss of clinical stability, technical problems that prevent a correct use of the mobile application), loss to follow-up or death.

9.2 Statistical Methods

A detailed statistical analysis plan will be written and agreed prior to any data analysis.

Primary endpoint:

The sample size of 3808 patients previously described, will further allow us to analyse the change in the paired proportions of patients at PAM-13 Level 1 to 2 will be compared between baseline and 12 months by estimating the difference in the discordant proportions and the appropriate 99% confidence interval and

presenting the value from a McNemar's test. We will explore associations between being at PAM-13 Levels 1 or 2 (Yes vs. No), and other variables, using a mixed effects logistic regression models with PAM-13 at Level 1 or 2 (Yes vs. No) at baseline and month 12 as the repeated measures outcome, controlling for time point, study site and the quota sampling (special population) variables and including a random effect for patient. We will report adjusted odds ratios, 99% confidence intervals and values. The details of the analysis, including the list of confounders to be fitted, will be agreed by consensus and documented in a full statistical analysis plan to be signed off before the final analysis of the data.

Exploratory analyses of the primary endpoint

We will perform stratified McNemar's tests to determine whether the difference in discordant proportions varies by clinical subgroups (i.e. male vs. female, aged 50+ years vs younger, IDU use ever (yes vs no), non-national (yes vs. no)

Secondary Endpoints:

- As for the primary endpoint at 12 months, but at 24 months.
- Difference in System Usability Scale (SUS) from months 12 to month 24
- Maintenance of virological suppression (HIV-1 RNA <50 c/ml), percentage of patients with changes in antiretroviral therapy from baseline to months 6,12,18,24 and 30.
- Changes in Quality of life questionnaire (EQ-5D-5L) from baseline to months 12 and 24.
- Changes in adherence quantified by adherence questionnaire from baseline to Months 12 and month 24.
- Changes in PROMS and PREMS questionnaire from baseline to Months 12 and month 24.
- Prevalence of frailty; pre-frailty and falls
- Changes in patient reported outcome in Participants Out of Pocket Expenditure from baseline to Months 12 and 24.

Statistical Analysis of Secondary Endpoints:

We will fit mixed effects models appropriate to outcome data type, with repeated measures in the outcome according to the time points specified above, controlling for time point, study site and the quota sampling (special population) variables and including a random effect for patient. We will report adjusted odds ratios, 99% confidence intervals and values. The details of the analyses, including the list of confounders to be fitted, will be agreed by consensus and documented in a full statistical analysis plan to be signed off before the final analysis of the data.

10. DATA HANDLING

10.1 Recording of Data

All data required for the study will be recorded in a web-based electronic CRF (eCRF) collection tool by appropriately trained and authorised member(s) of the study team who must be identified and authorised in writing by the Principal Investigator before they conduct any study related tasks. A delegation of responsibility log identifying who can enter data and/or sign off a CRF will be maintained by the Principal Investigator.

The eCRF should be kept current by entering data within two weeks of collection to enable the study monitor to review the subject status throughout the course of the study. In the case of the eCRF being unavailable, a paper CRF will be available to use at site. Data collected on paper will be uploaded to the eCRF as soon as available.

The Study Monitor and Data Manager from the Clinical Trials Unit (CTU) of Hospital Clinic at Barcelona will review data on an on-going basis and raise any discrepancies with site staff as required.

The data will be reviewed monthly and approved by the Investigator following subject completion.

10.2 Source Documentation and Study Records

The subject's number and date of entry into the study, along with a study identifier, should be recorded in the subject's study records. The following should also be recorded in the study records; confirmation of written and oral consent, the subject's clinical status, date of every study visit, date medication was started and stopped, concomitant medications, copies of all relevant reports and laboratory tests, comments on results and reference to serious adverse events.

10.3 Archiving and storage of data

Data will be kept on a secure network drive that will be hosted on Amazon AWS infrastructure in Dublin with access to authorised personnel of the clinical and technical team only. A log of authorised personnel will be stored in the Study Master File.

Following completion of the study, subject records, CRF and other study documentation will be retained by the Investigator in accordance with Good Clinical Practice (GCP) and applicable regulatory requirements.

11. QUALITY CONTROL

11.1 Monitoring Arrangements

The purpose of monitoring is to verify the rights and wellbeing of human subjects are protected; that study data is accurate, complete and verifiable with source data; that the study is conducted in compliance with the protocol, GCP and the applicable regulatory requirements.

A monitor from CTU will receive updates from study-sites 2 weeks after site initiation and monthly thereafter until the site has fully recruited. They will review basic demographic information (gender, age, IDU, ethnicity) of those recruited to ensure adequate representation of minority groups and will conduct a monitoring visit at each study site 2-4 weeks post initiation and annually. The Investigator must agree to allow the study monitor and authorised representatives of the Sponsor, to inspect all eCRF and corresponding source documents, e.g. original medical records, subject records and laboratory raw data, access to the clinical supplies, dispensing and storage areas and agree to assist with their activities if requested. The Investigator should provide adequate time and space for monitoring visits if they are required.

The monitor will query any missing or spurious data with the Investigator, which should be resolved in a timely manner. A monitoring log will be maintained recording each visit, the reason for the visit, the monitor's signature and Investigator's or designee's confirmation signature.

11.2 Quality Assurance

For the purpose of compliance with GCP and regulatory agency guidelines, it may be necessary for sponsor authorised Quality Assurance personnel and/or authorised personnel from an external regulatory agency to conduct an audit/inspection of an Investigational site. The purpose of an audit is to assess the quality of data with regard to accuracy, adequacy and consistency, and to assure that studies are in accordance with Good Clinical Practices and Regulatory Agency guidelines. The Investigator will be given sufficient notice to prepare for such visits, which are planned to take usually between one and two days and may be conducted at any stage during the study. The audit will involve the review of all study related documentation, which is required by GCP to be maintained by each site, review of drug storage, dispensing and return, review of all study related supplies and review of source documents against the CRF to assure the adequacy and accuracy of the information which has been recorded, including the verification of any AE which have occurred.

12. ADMINISTRATIVE PROCEDURES

12.1 Ethics Approval

The study protocol, subject information and consent form should be submitted to the Ethics Committee for ethical review and approval according to local regulations, prior to the study start. Any changes, which may need to be made, will be submitted in the form of numbered and dated protocol amendments in accordance with local regulations.

12.2 Regulatory Notification

As required by local regulations, approval of the appropriate regulatory bodies will be obtained, prior to study initiation.

12.3 Publication Policy

A whole or part of this study results will be communicated, orally presented, and published in appropriate scientific journals. Full anonymity of subject's details will be maintained throughout. Subjects wanting to see the results of the trial can request a copy of the article from the investigators once it has been published.

12.4 Amendments

A 'substantial amendment' is defined as an amendment to the terms of the Medical Research Ethics Committee application (MREC), or to the study protocol or any other supporting documentation, that is likely to affect to a significant degree:

- the safety or physical or mental integrity of the subjects of the study;
- the scientific value of the study;
- the conduct or management of the study; or
- the quality or safety of any intervention used in the study.

All substantial amendments will be notified to the MREC and to the competent authority. Non-substantial amendments will not be notified to the accredited MREC and the competent authority, but will be recorded and filed by the sponsor.

13. STRUCTURED RISK ANALYSES

13.1 Data Protection and Information Governance

It is recognized by this consortium that mHealth technology raises significant issues and concerns regarding information governance, data protection and patient confidentiality.

These have been addressed in detail by the work of work package 1 – details are summarised in Appendix 10.

13.2 Barriers to Implementation

It is acknowledged that whilst mHealth offers clear opportunities to improve self-management of chronic diseases and to rationalize and improve cost-effectiveness of health services, a number of barriers exist to implementation and adoption. These include, but are not restricted to, the following:

- Concerns regarding data protection
- A reluctance of some healthcare providers to embrace new technologies and change existing care models
- Issues of patient safety and liability
- Reimbursement within existing healthcare systems
- Concerns about the evaluation of mHealth technologies

Additionally, it is recognized that the level of electronic data capture within HIV clinics across the EU is highly variable. Whilst all of the selected sites currently collaborate and contribute data to EU-funded HIV observational cohorts (e.g. EuroSIDA), the extent to which this data capture is specific to patients consented within an individual clinical study or are generic across all clinic attendees is variable. Therefore, one of the initial steps within the programme of WP1 has been to agree a standard data-set, map the current ability of each clinical site to complete this agreed minimum data set with existing ICT infrastructure.

14. PROTOCOL SIGNATURE PAGE

STUDY SIGNATURE SHEET

Date	Name	Signature
Sponsor or legal representative: Fundació Clínic per a la Recerca Biomèdica		
Coordinating Investigator: Dr Agathe Leon		

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16. APPENDICES

Appendix 1: Study Flowchart

Flowchart						
	Baseline	Month 6	Month 12	Month 18	Month 24	Month 30
Confirm selection criteria	✓					
Sign informed consent	✓					
Patient mobile phone registration	✓					
Training for use the app	✓					
Demographic data	✓					
Previous medical history	✓					
Current Antiretroviral Therapy	✓	✓	✓	✓	✓	✓
Treatment adherence	✓		✓		✓	
Biochemistry	✓	✓	✓	✓	✓	✓
Hematology	✓	✓	✓	✓	✓	✓
Immunology	✓		✓		✓	✓
Virology	✓	✓	✓	✓	✓	✓
PAM-13 questionnaire	✓		✓		✓	
SUS questionnaire			✓		✓	
EQ-5D-5L questionnaire PROQOL-HIV questionnaire	✓		✓		✓	

Adherence questionnaire	✓		✓		✓	
PREM questionnaire	✓		✓		✓	
PROM questionnaire	✓		✓		✓	
Successful ageing questionnaire	✓		✓		✓	
Participants Out of Pocket Expenditure	✓		✓		✓	

Appendix 2: PAM (Insigna)**Appendix A: Patient Activation Measure® 13-Item**

Below are some statements that people sometimes make when they talk about their health. Please indicate how much you agree or disagree with each statement as it applies to you personally by circling your answer. If the statement does not apply to you, circle N/A.

1.	When all is said and done, I am the person who is responsible for taking care of my health	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
2.	Taking an active role in my own health care is the most important thing that affects my health	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
3.	I am confident I can help prevent or reduce problems associated with my health	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
4.	I know what each of my prescribed medications do	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
5.	I am confident that I can tell whether I need to go to the doctor or whether I can take care of a health problem myself	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
6.	I am confident that I can tell a doctor concerns I have even when he or she does not ask	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
7.	I am confident that I can follow through on medical treatments I may need to do at home	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
8.	I understand my health problems and what causes them	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
9.	I know what treatments are available for my health problems	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
10.	I have been able to maintain (keep up with) lifestyle changes, like eating right or exercising	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
11.	I know how to prevent problems with my health	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
12.	I am confident I can figure out solutions when new problems arise with my health	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A
13.	I am confident that I can maintain lifestyle changes, like eating right and exercising, even during times of stress	Disagree Strongly	Disagree	Agree	Agree Strongly	N/A

Appendix 3: Quality of Life questionnaires - EQ-5D-5L and PROQoL HIV

By placing a tick in one box in each group below, please indicate which statements best describe your own health state today.

Mobility

- I have no problems in walking about ☐
- I have slight problems in walking about ☐
- I have moderate problems in walking about ☐
- I have severe problems in walking about ☐
- I am unable to walk about ☐

Self-Care

- I have no problems washing or dressing myself ☐
- I have slight problems washing or dressing myself ☐
- I have moderate problems washing or dressing myself ☐
- I have severe problems washing or dressing myself ☐
- I am unable to wash or dress myself ☐

Usual Activities (e.g. work, study, housework, family or leisure activities)

- I have no problems doing my usual activities ☐
- I have slight problems doing my usual activities ☐
- I have moderate problems doing my usual activities ☐
- I have severe problems doing my usual activities ☐
- I am unable to do my usual activities ☐

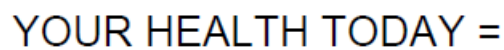
Pain/Discomfort

- I have no pain or discomfort ☐
- I have slight pain or discomfort ☐
- I have moderate pain or discomfort ☐
- I have severe pain or discomfort ☐
- I have extreme pain or discomfort ☐

Anxiety/Depression

- I am not anxious or depressed ☐
- I am slightly anxious or depressed ☐
- I am moderately anxious or depressed ☐
- I am severely anxious or depressed ☐
- I am extremely anxious or depressed ☐

- This scale is numbered from 0 to 100.
- 100 means the best health you can imagine.
- 0 means the worst health you can imagine.
- Mark an X on the scale to indicate how your health is TODAY.
- Now, please write the number you marked on the scale in the box



Protocol number	<input type="text"/>	Center number	<input type="text"/>	Date of subject visit	<input type="text"/> - <input type="text"/> - <input type="text"/>	Subject number	<input type="text"/>
Mode of completion:		<input type="checkbox"/> Self-completed		<input type="checkbox"/> Face to face interview			

PROQOL-HIV
Quality of Life HIV Questionnaire

Instructions

This questionnaire asks you how HIV and its treatment have affected your health and your life.

For each of the following questions, please check ☒ the box best suited to your personal situation.

When you don't know how to reply, give what you consider to be the most appropriate answer.

We want you to think about your life **during the last two weeks**.

Make sure you answer **each question** by checking a single box for each line.

	Very good	Good	Fair	Poor	Very poor
1. During the last two weeks, my overall health (both HIV and non-HIV related) has been	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the last two weeks, because I am HIV positive...	Never	Rarely	Some-times	Often	Always
2. I have felt tired	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I have had difficulty sleeping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I have had difficulty concentrating or paying attention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I have had problems with my memory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I have had difficulty with daily activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I have had difficulty with strenuous physical activities such as carrying heavy objects, running, or walking a long distance, climbing several flights of stairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I have been bothered by digestive problems (stomach ache, bloating, diarrhoea, nausea or vomiting)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I have been bothered by pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I have had a poor appetite	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the last two weeks, because I am HIV positive...	Never	Rarely	Some-times	Often	Always
11. I have been bothered by a change in weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I have been bothered by skin problems (dry skin, itching, rash)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I have been bothered by the changes in my body shape (sunken cheeks, thinner legs or arms, smaller buttocks, larger chest or breasts, fat belly, fat at the back of the neck)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I have been unhappy with my physical appearance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the last two weeks, because I am HIV positive...	Never	Rarely	Some-times	Often	Always
15. I have avoided going out with my friends or my family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I have felt restricted in my relationships with my family or friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I have had difficulties with my love life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. My sexual desire has diminished	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I have felt restricted in my sexual activities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I have been afraid of disclosing that I am HIV positive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I have been afraid of infecting others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the last two weeks, because I am HIV positive...	Never	Rarely	Some-times	Often	Always
22. I have been sad	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I have been anxious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I have been more irritable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I have been depressed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. HIV was on my mind	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. I have worried about the results of my follow-up tests such as viral load or T cells	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I have been afraid that my disease will get worse one day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. I have been afraid of catching infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the last two weeks, because I am HIV positive...	Never	Rarely	Some-times	Often	Always
30. My spiritual or religious beliefs have helped me to live with HIV	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. I have been satisfied with the health care I received	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I have had financial difficulties	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. The thought that it will be difficult for me to have a child has worried me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you **are** taking HIV medicine, please **continue** to the end

If you are **not** taking any HIV medicine, please **stop** to fill the questionnaire

During the last two weeks, because I am taking HIV medicine...	Never	Rarely	Some-times	Often	Always
34. Having to take my HIV medicine everyday has bothered me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I have been satisfied with my HIV medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I have been bothered by the side effects of my HIV medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. The size of the pills has bothered me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. The number of pills per day has bothered me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. I have been bothered by the number of times I have had to take my HIV medicine each day	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. I have had to hide in order to take my HIV medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I have felt like changing my HIV medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Because of my HIV medicine, I have had difficulty going out with my friends or family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. I have forgotten to take my HIV medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Before returning this questionnaire,
please make sure you have answered **all** the questions

Thank you

Appendix 4: SUS

System Usability Scale

© Digital Equipment Corporation, 1986.

Strongly disagree

Strongly agree

1. I think that I would like to use this system frequently

1

2

3

4

5

2. I found the system unnecessarily Complex

1

2

3

4

5

3. I thought the system was easy to use

1

2

3

4

5

4. I think that I would need the support of a technical person to be able to use this system

1

2

3

4

5

5. I found the various functions in this system were well integrated

1

2

3

4

5

6. I thought there was too much inconsistency in this system

1

2

3

4

5

7. I would imagine that most people would learn to use this system very quickly

1

2

3

4

5

8. I found the system very cumbersome to use

1

2

3

4

5

9. I felt very confident using the System

1

2

3

4

5

10. I needed to learn a lot of things before I could get going with this system

1

2

3

4

5

Appendix 5: Adherence Questionnaire (MASRI)

STUDY WEEK X

Date of questionnaire completion:

d	d	m	m	y	y

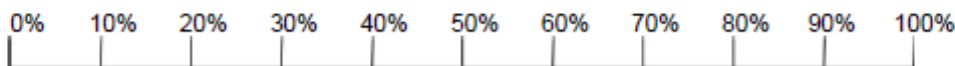
Modified Medication Adherence Self-Report Inventory (M-MASRI)

<i>We understand that many people on anti-HIV medications find it very difficult to take them regularly. We would like to know HOW MUCH you have taken DURING THE PAST 30 DAYS of the following anti-HIV Medication:</i>	
Name (+ other Name(s)) and Description:	
Number of pills per "dose" (= per intake)	<table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table> Pill(s) per "dose" (per intake)
Number of "doses" (intakes) per day:	<table border="1" style="display: inline-table; width: 40px; height: 20px; vertical-align: middle;"></table> Time(s) (daily)
<i>This questionnaire is completely confidential. Under no circumstances will your answers be shown to your doctor or anyone else involved in your care.</i>	

We would like you to show us **HOW MUCH** of the Medication above you have taken **DURING THE LAST 30 DAYS**. We would be surprised if this was 100%.

Put a cross on the line below at the point showing your best guess about **HOW MUCH** of the Medication above you have taken **DURING THE LAST 30 DAYS**.

E.g. 0% means you **haven't taken any dose** of the Medication above, 50% means you **have taken half of the prescribed doses** of the Medication above and 100% means you **have taken every single dose** of the Medication above.



Appendix 6: PREM and “Positive Outcomes” PROM questionnaires

I have enough information about my HIV

Strongly agree / Agree / Disagree / Strongly disagree / Don't know

I feel supported to self-manage my HIV

Strongly agree / Agree / Disagree / Strongly disagree / Don't know

I am involved in decisions about my HIV

Strongly agree / Agree / Disagree / Strongly disagree / Don't know

How would you rate overall your satisfaction with the EmERGE service?

Excellent / Good / Satisfactory / Poor / Very poor

Would you recommend the EmERGE service to a friend?

Yes / No

Space for comment

“POSITIVE OUTCOMES” HIV PROM

Please answer the following questions about any problems or worries that you have had over the past 4 weeks. Your answers are really important to us. They will help us to improve your HIV care by making sure that we can focus on the things that are most important to you.

1. What have been your **main problems and worries over the past 4 weeks** that you would like to be addressed?

a. _____

b. _____

c. _____

2. In general, how would you rate your **health and wellbeing** over the past 4 weeks? *Please think about both physical and emotional wellbeing.*

Excellent	Good	Average	Poor	Very poor
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

1. Do you feel you have **enough information** to manage your HIV?

Enough Information, <i>The right amount for me</i>	Information received, <i>but hard to understand</i>	Information received, <i>but would like more</i>	Very little information, <i>and would like more</i>	No information received, <i>and would like information</i>
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

The next few questions ask you more about your **physical** health and wellbeing.

2. Over the past 4 weeks, how much have you been affected by **pain**? *This could include headache, joint pain, neuropathy (which might include pins and needles or burning pain) or any other pain in your body*

Not at all	Slightly	Moderately	Severely	Overwhelmingly
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

3. Over the past 4 weeks, how much have you been affected by **stomach or bowel problems**? *This could include sickness, diarrhoea, bloating, feeling sick or other stomach or bowel problems*

Not at all	Slightly	Moderately	Severely	Overwhelmingly
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

4. Over the past 4 weeks, how much have you been affected by problems with your **memory or concentration**?

Not at all	Slightly	Moderately	Severely	Overwhelmingly
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

5. Over the past 4 weeks, how much have you been affected by problems with your **sleep**?

Not at all	Slightly	Moderately	Severely	Overwhelmingly
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

6. Over the past 4 weeks, have you been physically able to **carry out your usual activities**? *This could include washing, dressing, housework, work, study, leisure activities, socialising, as well as other things*

Always	Most of the time	Sometimes	Occasionally	Not at all
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

*The next few questions ask you more about your **emotional** health and wellbeing.*

7. Over the past 4 weeks, have you been feeling **anxious or worried**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

8. Over the past 4 weeks, have you been feeling **depressed or low in mood**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

9. Over the past 4 weeks, have you felt worried about **telling someone about your HIV** status?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

10. Over the past 4 weeks, have you felt **good about yourself**?

Always	Most of the time	Sometimes	Occasionally	Not at all
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

11. Over the past 4 weeks, have you felt **at peace**?

Always	Most of the time	Sometimes	Occasionally	Not at all
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

The next few questions ask you more about your **home and social life**.

12. Over the past 4 weeks, have you been worried about your **safety** in your relationships? *This may include intimate relationships, or relationships with family, friends and other people around you.*

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

13. Over the past 4 weeks, have you or anyone close to you been worried about your **drug or alcohol** use?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

14. Over the past 4 weeks have you been worried about **money**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

15. Over the past 4 weeks have you been worried about your **housing**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

16. Over the past 4 weeks have you been worried about your **immigration** status?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

17. Over the past 4 weeks have you felt that you have had enough **support from people around you**? *This may include partners, friends, family, support groups and other networks.*

Always	Most of the time	Sometimes	Occasionally	Not at all
--------	------------------	-----------	--------------	------------

<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
---------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------

These last few questions ask you more about **sex and intimate relationships**.

18. Over the past 4 weeks, have you been worried about **sex or intimacy**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

19. Over the past 4 weeks, have you been worried about your **sexual health**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

20. Over the past 4 weeks, have you been worried about **contraception**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

21. Over the past 4 weeks, have you been worried about **starting a family or having a child**?

Not at all	Occasionally	Sometimes	Most of the time	Always
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴

Thank you for taking the time to answer these questions. Your answers are really important to us. They will help us to improve your HIV care by making sure that we can focus on the things that are most important to you.

Appendix 7: Successful ageing Questionnaire

We would like to ask you some questions which relate to growing older successfully.

- a. So far I am satisfied with the way that I am ageing

Strongly disagree	Somewhat disagree	Slightly disagree	Slightly agree	Somewhat agree	Strongly agree
1	2	3	4	5	6

- b. Many people feel older or younger than they actually are. What age do you feel?
(Please write in a number)

- c. How much of the time during the past 4 weeks did you feel tired?

Circle one (*Responses of "1" or "2" are scored as 1 and all others as 0*)

All of the time	Most of the time	Some of the time	A little of the time	None of the time
1	2	3	4	5

- d. **By yourself and not using walking aids**, do you have any difficulty walking up 10 steps without resting?

Yes = 1	No = 0
---------	--------

- e. **By yourself and not using walking aids**, do you have any difficulty walking several hundred metres?

Yes = 1	No = 0
---------	--------

- f. Did a doctor ever tell you that you have an illness? Circle Yes or No below *

Angina	Yes	No
arthritis	Yes	No
asthma	Yes	No
cancer (not minor skin cancer)	Yes	No
chronic lung disease	Yes	No
congestive heart failure	Yes	No
diabetes	Yes	No
heart attack	Yes	No
hypertension	Yes	No
kidney disease	Yes	No
stroke	Yes	No

g. Without trying, have you lost over 5% of your body weight in the last year? **

Yes = 1	No= 0
---------	-------

h. Falls: In the last year, have you fallen down for any reason?

Yes = 1	No= 0
---------	-------

i. If yes, how many times have you fallen?

(Please document number)

j. I would like to see issues around ageing with HIV included within the mobile phone application

Strongly disagree	Somewhat disagree	Slightly disagree	Slightly agree	Somewhat agree	Strongly agree
1	2	3	4	5	6

**The total illnesses (0-11) are recoded as 0-4 = 0 and 5-11 = 1*
***can also calculate from measured weights or by participants giving weight now & remembered weight a year prior*

Appendix 8: Participants Out of Pocket Expenditure

Questions completed at Baseline (week 0, month 12, month 24)

1. What is your current work situation? (Please tick ONE ONLY)

- Employed or self-employed full-time (at least 30 hours per week)
- Employed or self-employed part-time (less than 30 hours per week)
- Full time student / education / training
- Unemployed and registered for benefits
- Unemployed, NOT registered for benefits
- Permanently sick / disabled (for 3 months or more)
- Temporarily sick / disabled (for less than 3 months)
- Staying at home looking after home / family / dependants full-time
- Retired
- Other (please specify)
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐

2. If you are working, how many hours do you work per week?

.....hours/week

3. If you are working, what is your monthly net salary after tax? (This information is completely confidential and WILL NOT be released to any other organisation.)

£

- < £500
- £500 to £999
- £1000 to £1499
- £1500 to £1999
- £2000 to £2499
- £2500 to £2999
- > £3000

4. If you are working, how many days of sick leave have you had in the past 3 months

.....

5. What is your current housing situation?

- Own my own home (including with mortgage / loan / shared ownership)☐
- Renting state owned property☐
- Renting from private landlord☐
- Temporary accommodation (hostel, shelter, bed & breakfast, squat)☐
- Living with partner / friend(s) / family in their house☐
- Homeless☐
- Other (please specify)☐

6. Do you find it difficult to pay for the cost of heating your home in the winter?

- Yes☐
- No☐

7. Do you receive any benefits? (This information is completely confidential and WILL NOT be released to any other organisation.)

- Yes☐
- No☐

8. If Yes, how much do you receive per month in pounds?

£.....

9. If Yes, you receive monetary benefits do you receive any of the following? (Please tick ALL THAT APPLY)

- Income Support☐
- Pension Credit☐
- Housing Benefit☐
- Working Tax Credit☐

Other ☐

10. How much does it cost you to go to the clinic for your routine visit (return journey)?

£.....

11. Do you use hospital transport?

Yes ☐

No ☐

12. How many hours does it take for you to go to your clinic appointment and return to work or home?

.....hours

13. How much does it cost you to go to the clinic for your blood tests (return journey)?

£.....

14. How many hours does it take for you to go to your blood tests and return to work or home?

.....hours

15. How do you receive your antiretroviral medications? [Please tick those that apply]

- a) I usually pick them up from the hospital pharmacy when I have my routine visit
- b) I have them delivered to my home
- c) I have them delivered to work
- d) I have them delivered to the local post office / pharmacy

16. If delivered to the post office or local pharmacy

- a) how much does it cost you to go and pick them up? £.....
- b) how many hours does it take for you to go and pick them up?hours

17 Do you have to take a day of work to attend for your routine appointment, taking bloods for tests or getting your drugs?

- Yes for the routine clinic visit ☐
- Yes for having my bloods taken ☐
- Yes for picking up my drugs ☐
- No – for none of these ☐

Appendix 9: PROM translation & cognitive interviews for PROM

The POSITIVE OUTCOMES PROM (including at appendix 6) will be included in the questionnaire pack of EMERGE and we will be using it as an outcome and determining its properties under this project. Once we have it validated it will be utilised as a tool in routine practice to improve interaction between the person living with HIV and their clinician, to plan care and to evaluate change.

A: Translation

Please get 2 independent forward/backward translations into your local language and then get agreement between the translators between on final version.

B. Cognitive interviews

i) Please select a purposive sample of PLWH (n=6, sample by sexuality, gender, age, ethnicity, education) to get a broad sample.

ii) In terms of information, they will be required to read aloud a brief questionnaire about what matters to people living with HIV in terms of their health and wellbeing, and to tell us what they think of it.

iii) The interview schedule will be as follows:

“Thank you for agreeing to take part in our study. We have been working with people living with HIV to develop a new simple checklist of the things that matter to their health and wellbeing. It will be use in routine HIV care appointments, to make sure that people are asked about everything that might matter to them.

Today, I would like you read to read each question out loud, tell me what you think it means, and if you think it makes clear sense. You can make any suggestions for changing the wording. We'd then like you to tell us out loud how you would decide your score. Lastly, you can tell us overall what you think of the length, layout and content. I will write down your thoughts. Thank you.”

To make the process easy please write in the answers and email scans back to
richard.harding@kcl.ac.uk and Katherine.bristowe@kcl.ac.uk

1. RESEARCHER DATA RECORDING SHEET: COGNITIVE INTERVIEWS

Date: _____ Researcher: _____ Country: _____ Participant ID: _____

Age of participant (years) _____ Gender: male ☐ female ☐ other ☐ _____

Ethnicity: White ☐ Black African/Caribbean ☐ Asian ☐ Other ☐

Sexuality: Gay ☐ Lesbian ☐ Bisexual ☐ Heterosexual ☐ Other ☐

ITEM	
1.	What have been your main problems and worries over the past 4 weeks that you would like to be addressed?
<i>Interpretation:</i>	
<i>Scoring process:</i>	
<i>Any suggested amendments:</i>	

2.	In general, how would you rate your health and wellbeing over the past 4 weeks? <i>Please think about both physical and emotional wellbeing.</i>				
	Excellent	Good	Average	Poor	Very poor
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					
<i>Any suggested amendments:</i>					

3.	Do you feel you have enough information to manage your HIV?				
	Enough Information, <i>The right amount for me</i>	Information received, <i>but hard to understand</i>	Information received, <i>but would like more</i>	Very little information, <i>and would like more</i>	No information received, <i>and would like information</i>
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Interpretation:					
Scoring process:					

<i>Any suggested amendments:</i>					
	The next few questions ask you more about your physical health and wellbeing.				
4.	5. Over the past 4 weeks, how much have you been affected by pain ? <i>This could include headache, joint pain, neuropathy (which might include pins and needles or burning pain) or any other pain in your body</i>				
	Not at all	Slightly	Moderately	Severely	Overwhelmingly
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
5.	Over the past 4 weeks, how much have you been affected by stomach or bowel problems ? <i>This could include sickness, diarrhoea, bloating, feeling sick or other stomach or bowel problems</i>				
	Not at all	Slightly	Moderately	Severely	Overwhelmingly
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
6.	Over the past 4 weeks, how much have you been affected by problems with your memory or concentration ?				
	Not at all	Slightly	Moderately	Severely	Overwhelmingly
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
7.	Over the past 4 weeks, how much have you been affected by problems with your sleep ?				
	Not at all	Slightly	Moderately	Severely	Overwhelmingly
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

Any suggested amendments:					
8.	Over the past 4 weeks, have you been physically able to carry out your usual activities ? <i>This could include washing, dressing, housework, work, study, leisure activities, socialising, as well as other things</i>				
	Always	Most of the time	Sometimes	Occasionally	Not at all
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Interpretation:					
Scoring process:					

<i>Any suggested amendments:</i>					
	The next few questions ask you more about your emotional health and wellbeing.				
9.	Over the past 4 weeks, have you been feeling anxious or worried ?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
10.	11. Over the past 4 weeks, have you been feeling depressed or low in mood ?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
11.	Over the past 4 weeks, have you felt worried about telling someone about your HIV status?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
12.	Over the past 4 weeks, have you felt good about yourself ?				
	Always	Most of the time	Sometimes	Occasionally	Not at all
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>															
13.	<p>Over the past 4 weeks, have you felt at peace?</p> <table border="1" data-bbox="622 635 2018 791"> <tr> <td data-bbox="622 635 900 703">Always</td> <td data-bbox="900 635 1178 703">Most of the time</td> <td data-bbox="1178 635 1456 703">Sometimes</td> <td data-bbox="1456 635 1733 703">Occasionally</td> <td data-bbox="1733 635 2011 703">Not at all</td> </tr> <tr> <td data-bbox="622 703 900 791"><input type="checkbox"/>⁰</td> <td data-bbox="900 703 1178 791"><input type="checkbox"/>¹</td> <td data-bbox="1178 703 1456 791"><input type="checkbox"/>²</td> <td data-bbox="1456 703 1733 791"><input type="checkbox"/>³</td> <td data-bbox="1733 703 2011 791"><input type="checkbox"/>⁴</td> </tr> </table>					Always	Most of the time	Sometimes	Occasionally	Not at all	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Always	Most of the time	Sometimes	Occasionally	Not at all											
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴											
<i>Interpretation:</i>															
<i>Scoring process:</i>															

Any suggested amendments:															
	The next few questions ask you more about your home and social life.														
14.	<p>Over the past 4 weeks, have you been worried about your safety in your relationships? <i>This may include intimate relationships, or relationships with family, friends and other people around you.</i></p> <table border="1" data-bbox="622 687 2018 842"> <tr> <td data-bbox="622 687 902 759">Not at all</td> <td data-bbox="902 687 1182 759">Occasionally</td> <td data-bbox="1182 687 1462 759">Sometimes</td> <td data-bbox="1462 687 1742 759">Most of the time</td> <td data-bbox="1742 687 2018 759">Always</td> </tr> <tr> <td data-bbox="622 759 902 842"><input type="checkbox"/>⁰</td> <td data-bbox="902 759 1182 842"><input type="checkbox"/>¹</td> <td data-bbox="1182 759 1462 842"><input type="checkbox"/>²</td> <td data-bbox="1462 759 1742 842"><input type="checkbox"/>³</td> <td data-bbox="1742 759 2018 842"><input type="checkbox"/>⁴</td> </tr> </table>					Not at all	Occasionally	Sometimes	Most of the time	Always	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Not at all	Occasionally	Sometimes	Most of the time	Always											
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴											
Interpretation:															
Scoring process:															

<i>Any suggested amendments:</i>					
15.	Over the past 4 weeks, have you or anyone close to you been worried about your drug or alcohol use?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
16.	Over the past 4 weeks have you been worried about money ?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
17.	Over the past 4 weeks have you been worried about your housing ?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>					
18.	Over the past 4 weeks have you been worried about your immigration status?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

Any suggested amendments:					
19.	20. Over the past 4 weeks have you felt that you have had enough support from people around you? <i>This may include partners, friends, family, support groups and other networks.</i>				
	Always	Most of the time	Sometimes	Occasionally	Not at all
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Interpretation:					
Scoring process:					

<i>Any suggested amendments:</i>															
	These last few questions ask you more about sex and intimate relationships.														
20.	<p>Over the past 4 weeks, have you been worried about sex or intimacy?</p> <table border="1" data-bbox="622 639 2018 799"> <tr> <td data-bbox="622 639 902 711">Not at all</td> <td data-bbox="902 639 1182 711">Occasionally</td> <td data-bbox="1182 639 1462 711">Sometimes</td> <td data-bbox="1462 639 1742 711">Most of the time</td> <td data-bbox="1742 639 2018 711">Always</td> </tr> <tr> <td data-bbox="622 711 902 799"><input type="checkbox"/>⁰</td> <td data-bbox="902 711 1182 799"><input type="checkbox"/>¹</td> <td data-bbox="1182 711 1462 799"><input type="checkbox"/>²</td> <td data-bbox="1462 711 1742 799"><input type="checkbox"/>³</td> <td data-bbox="1742 711 2018 799"><input type="checkbox"/>⁴</td> </tr> </table>					Not at all	Occasionally	Sometimes	Most of the time	Always	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Not at all	Occasionally	Sometimes	Most of the time	Always											
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴											
<i>Interpretation:</i>															
<i>Scoring process:</i>															

<i>Any suggested amendments:</i>					
21.	Over the past 4 weeks, have you been worried about your sexual health ?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>																									
22.	<p>Over the past 4 weeks, have you been worried about contraception?</p> <table border="1" data-bbox="618 639 2018 799"> <tr> <td>Not at all</td> <td>Occasionally</td> <td>Sometimes</td> <td>Most of the time</td> <td>Always</td> </tr> <tr> <td><input type="checkbox"/>⁰</td> <td><input type="checkbox"/>¹</td> <td><input type="checkbox"/>²</td> <td><input type="checkbox"/>³</td> <td><input type="checkbox"/>⁴</td> </tr> </table> <table border="1" data-bbox="618 863 2018 1023"> <tr> <td>Not at all</td> <td>Occasionally</td> <td>Sometimes</td> <td>Most of the time</td> <td>Always</td> </tr> <tr> <td><input type="checkbox"/>⁰</td> <td><input type="checkbox"/>¹</td> <td><input type="checkbox"/>²</td> <td><input type="checkbox"/>³</td> <td><input type="checkbox"/>⁴</td> </tr> </table>					Not at all	Occasionally	Sometimes	Most of the time	Always	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴	Not at all	Occasionally	Sometimes	Most of the time	Always	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
Not at all	Occasionally	Sometimes	Most of the time	Always																					
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴																					
Not at all	Occasionally	Sometimes	Most of the time	Always																					
<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴																					
<i>Interpretation:</i>																									
<i>Scoring process:</i>																									

<i>Any suggested amendments:</i>					
23.	Over the past 4 weeks, have you been worried about starting a family or having a child?				
	Not at all	Occasionally	Sometimes	Most of the time	Always
	<input type="checkbox"/> ⁰	<input type="checkbox"/> ¹	<input type="checkbox"/> ²	<input type="checkbox"/> ³	<input type="checkbox"/> ⁴
<i>Interpretation:</i>					
<i>Scoring process:</i>					

<i>Any suggested amendments:</i>	

Appendix 10: Ethical Considerations

REGULATION STATEMENT

The clinical study will be conducted in accordance with the principles contained in the Declaration of Helsinki.

mHealth solutions and apps are able to collect large quantity of data from clouds or different data bases to the devices and process these in order to provide new and innovative services to the end user. But, Information collected by apps or smart solution could produce unknown or unwanted risk for private life of end users. These characteristics of mHealth solutions involved specific legal requirements related to data protection (including security of health data), data subject's right and safety.

Still there is no a clear EU legislation about mHealth solutions and apps, EU legislation is lagging behind, however, it recently has taken a big leap forward in privacy laws.

Green Paper on mobile Health (mHealth)¹, Staff Working Document² and Opinion 02/2013 on apps and on smart devices (adopted on 27 February 2013)³ provide guidance to the software developers and manufactures about the legislation applicable to mHealth solutions and to lifestyle and wellbeing apps.

Below we discuss current legal framework at European and Members states level from the clinical sites related to data protection principles, security of personal data, data subject's rights and safety issues that will be applied in this study.

AT EUROPEAN LEVEL (according to Opinion 02/2013 on apps and on smart devices)

Data protection principles

Applicable laws:

Regulation (EU) 2016/679 (General Data Protection Regulation or short GDPR) repealing Directive 95/46/EC (Data Protection Directive).

Some important dates are :

- Date of document 27 April 2016
- Published 4 May 2016
- In force 24 May 2016
- Apply 25 May 2018

We are therefore at the time of writing in the de facto transition period, from Directive 95/46 EC to Regulation (EU) 2016/679 (General Data Protection Regulation or short GDPR).

Because the GDPR is a regulation, not a directive, individual member states do not need to

¹ <http://ec.europa.eu/digital-agenda/en/news/green-paper-mobile-health-mhealth>

² http://ec.europa.eu/environment/forests/pdf/green_paper_wd.pdf

³ http://ec.europa.eu/justice/data-protection/article-29/documentation/opinion-recommendation/files/2013/wp202_en.pdf

draw up new legislation. However there is room for EU member states to implement stricter, less strict, or more detailed rules. The GDPR will apply automatically from 25 May 2018, it not only applies to organisations located within the EU but it will also apply to organisations located outside of the EU if they offer goods or services to, or monitor the behaviour of, EU data subjects. Until this date, Data Protection Directive (95/46/EC) applies in any case where the use of apps on smart devices involves processing personal data of individuals. ePrivacy directive (2002/58/EC, as revised by 2009/136/EC), sets a specific standard for all parties worldwide that wish to store or access information stored in the devices of users in the European Economic Area (EEA).

Article 5(3) of the ePrivacy directive prescribes that *the storing of information, or the gaining of access to information already stored, in the terminal equipment of a subscriber or user is only allowed on condition that the subscriber or user concerned **has given his or her consent**, having been provided with clear and comprehensive information, in accordance with GDPR, inter alia about the purposes of the processing. (...)*

CONSENT REQUIREMENTS ARE THE MOST RELEVANT DATA PROTECTION PRINCIPLES

Consent requirements applies: To any information without regards to the nature of the data being stored or accessed

Personal data processed by apps: Many types of data stored on or generated by a smart device are personal data. According to Recital 24 of the ePrivacy directive:

"Terminal equipment of users of electronic communications networks and any information stored on such equipment are part of the private sphere of the users requiring protection under the European Convention for the Protection of Human Rights and Fundamental Freedoms."

Protection responsibilities: Many different parties are involved in the development, distribution and operation of apps and each of which can have different data protection responsibilities. For instance parts involved are:

- App developers
- Operating System (OS) and device manufacturers
- App stores
- Third parties

Legal ground in process personal data and storing information:

- Process personal data is regulated by Article 7 of the Data Protection Directive and Article 4 of GDPR.
- Storing information or Access to information already stored is regulated by Article 5(3) of ePrivacy Directive

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Security of personal data

It's is related to the technical and organizational measures needed to ensure the protection of personal data

Applicable law: Article 32 of the GDPR, the controller and the processor shall implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk.

Actors involved: According the role and responsibility of all actors involved measures are different to:

App developers

Operating System (OP) and device manufacturers

App stores

Third parties

Information and access to personal data

Right of access by the data subject

Applicable law: Article 15 of the GDPR, The data subject shall have the right to obtain from the controller confirmation as to whether or not personal data concerning him or her are being processed, and, where that is the case, access to the personal data.

Right to rectification

Applicable law: Article 16 of the GDPR, The data subject shall have the right to obtain from the controller without undue delay the rectification of inaccurate personal data concerning him or her. Taking into account the purposes of the processing, the data subject shall have the right to have incomplete personal data completed, including by means of providing a supplementary statement.

Right to erasure ('right to be forgotten')

Applicable law: Article 17 of the GDPR, The data subject shall have the right to obtain from the controller the erasure of personal data concerning him or her without undue delay and the controller shall have the obligation to erase personal data without undue delay.

How user to exercise control over the processing of their personal data: Apps must clearly and visibly inform their users about the existence of these access and correction mechanisms

Safety

Some mHealth apps may fall under the definition of a medical device or of an in-vitro diagnostic medical device and therefore may have to comply with the safety and performance requirements of **Directive 93/42/EEC concerning medical devices or Directive 98/79/EC on in vitro diagnostic medical devices respectively.**

There are no clear rules in the EU as to the delimitation between lifestyle and wellbeing apps and a medical device or in vitro diagnostic medical device. Since January 2012, in order to help software developers and manufacturers identify whether their products fall or not under the

Directive on medical devices or the Directive on in vitro diagnostic Medical devices, the Commission's services have issued some guidance on this issue which will be continuously updated⁴.

AT MEMBERS STATES LEVEL

1. *Barcelona (Spain)*

Data protection

Organic Law 15/1999 on the Protection of Personal Data.

Article 4. Quality of the data

1. Personal **data may be collected for processing**, and undergo such processing, only if they **are adequate, relevant and not excessive** in relation to the scope and the specified, explicit and legitimate purposes for which they were obtained.

2. Personal data subjected **to processing may not be used for purposes incompatible with those for which they were collected**. Further processing of the data for historical, statistical or scientific purposes shall not be considered incompatible

Article 5. Right of information in the collection of data

Data subjects from who personal data are requested must previously be informed explicitly, precisely and unequivocally of the following:

Article 6. Consent of the data subject

Processing of personal data shall require the unambiguous consent of the data subject unless laid down otherwise by law.

Article 7. Specially protected data. Data related to the Ideology, union membership, religion and beliefs, race, health and sexual life.

Article 8. Data relating to health

Institutions and public and private health centers and the corresponding professionals may proceed to the treatment of personal data relating to the health of people who come there and must be treated in accordance with the provisions of health state or regional law.

Security

Article 9. Data security

1. The controller or, where applicable, the processor shall **adopt the technical and organisational measures necessary to ensure the security of the personal data** and prevent their alteration, loss, unauthorised processing or access, having regard to the state of

⁴ Guidelines on the qualification and classification of stand-alone software used in healthcare within the regulatory framework of medical devices, MEDDEV 2.1/6 January 2012

the art, the nature of the data stored and the risks to which they are exposed by virtue of human action or the physical or natural environment.

2. No personal data shall be recorded in files which do not meet the conditions laid down by rules regarding their integrity and security, as well as the rules governing the processing centres, premises, equipment, systems and programs.

3. Rules shall be laid down governing the requirements and conditions to be met by the files and the persons involved in the data processing referred to in Article 7 of this Law.

Article 10. Secrecy

The person in charge of data and those who are involved in any stage of processing the personal data are bound to secrecy regarding the data and the 5 duty to protect them, obligations supersede even after completing their relations with holder.

Article 11. Data Communications

The general principle is the consent of the person concerned. This is not necessary, among other assumption:

- 1) when the transfer occurs between government and its purpose subsequent processing of data for purposes historical, statistical or scientific.
- 2) when the transfer of personal data concerning health is necessary to resolve an emergency that requires access to a file or for epidemiological studies

Patients' rights:

The primary legal sources of patient rights at national level in Spain are the General Law on Public Health of 1986 and the Basic Law 41/2002 on the Autonomy of the Patient and the Rights and Obligations with regard to Information and Clinical Documentation. This Patient Rights Law entered into force on 16 May 2003. According to the first article of this Patient Rights Law the purpose of this law is to regulate the autonomy of the patient and the rights and obligations with regard to information and clinical documentation of patient, users, professionals as well as public and private health centres and services.

Patient rights: Right to healthcare information; Right to privacy; Right to the autonomy of the patient; Right to the access to clinical records; Right to dignified treatment.

2. Brighton (United Kingdom)

In the UK the ethics approval process is separate from the hospital/ institution.

Approval for the implementation of the mHealth platform was sought separately from the Brighton and Sussex University Hospitals NHS Trust IT Information Governance Group.

Clinicians in the UK are accredited to deliver services at a distance, however when giving advice across international borders, it is the responsibility of the user to assess whether they meet their national requirements.

In the UK the existing legal framework is ready to accommodate the telemedicine approach, and government bodies are actively exploring means of increasing the utility of such mobile apps in healthcare.

Regulation in the UK is covered by the Data Protection Act and the European Directive on Misleading Advertising: <http://www.legislation.gov.uk/ukpga/1998/29/contents>

<http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006L0114&from=EN>

In terms of their use of software in the medical sector it is the UK Competent Authority, The Medicines and Healthcare products Regulatory Agency (MHRA), which dictates which regulatory controls should apply to software and they have developed guidelines for manufacturers and investigators.

Guidance from the MHRA:

<https://www.gov.uk/government/publications/medical-devices-software-applications-apps/medical-device-stand-alone-software-including-apps>

3. Antwerp (Belgium)

Directive 2011/24/EU is not in conflict with the advice from the Belgian Medical Council which says that a doctor may only offer advice to a known and identified patient after examination.

Some interesting recommendations from the Belgian Medical Council:

“Before going into these themes, we have to recall some general privacy rules which a doctor Should pursue when using the various digital applications, especially when they deals with health information covered by medical secrecy:

- Processing of health data can only be done in the interest of patients without compromising their right to informational privacy.
- The used information networks must be sufficiently secured and regularly screened for security vulnerabilities and with the necessary access to be provided with eID.
- The physician should use a strong enough password.
- They need to use a custom anti-virus software that is always up to -date.
- It should always be securely closed off the software at stopping the activities.
- They work exclusively with companies who contractually guarantee confidentiality principle.
- They use their computer whenever possible exclusively for professional purposes.

A doctor may only offer advice to a known and identified patient after examination, as part of the care continuum (e.g. Evaluation, adaptation medication, side effects ...). For charging a fee for a telephone medical advice, there is no nomenclature number.

Consequently the patient cannot be charged, as he/she cannot get a refund.

The patient must be advised of the fact that for a doctor it is impossible to diagnose without an anamnesis and physical examination. The interpretation of (acute) symptoms is hopeless without seeing the patient and entails public and personal health risks.

Storing medical data health data in the "cloud" requires thorough security procedures to safeguard professional secrecy and the informational privacy of the patient. It is vital to know where the server where the information is stored, actually is, how health information is stored (encryption) and the law applicable to the processing of health data."

Advice from the Belgian Medical Council: <http://ordomedic.be/nl/adviezen/advies/artsen-en-digitale-media>

4. Zagreb (Croatia)

Current legal framework in Croatia related to ethical aspects of conducting scientific research and clinical trials, data protection principles, security of personal data, patients' rights and safety includes the following acts:

1. Zakon o lijekovima / Act on Medicinal Products (Official Gazette No. 76/13)
2. Zakon o medicinskim proizvodima / Act on Medical Devices (Official Gazette No. 76/13)
3. Zakon o zdravstvenoj zaštiti / Act on Health Care (Official Gazette No. 1150/08, 71/10, 139/10, 22/11, 84/11, 154/11, 12/12, 70/12, 144/12, 82/13, 159/13 and 22/14)
4. Zakon o liječništvu / Act on Medical Practice (Official Gazette No. 121/03 and 117/08)
5. Hrvatska liječnička komora: Kodeks medicinske etike i deontologije/ The Croatian Medical Chamber: Codex of medical ethics and deontology, 2006." (Official Gazette No. 55/08 and 139/15)
6. Zakon o zaštiti prava pacijenata / Act on the Protection of Patients' Rights (Official Gazette No. 169/04 and 37/08) - in particular Articles 19, 20 and 21.
7. Zakon o zaštiti osobnih podataka / Act on Personal Data Protection (Official Gazette No. 103/03, 118/06, 41/08, 130/11 and 106/12 - consolidated text).
8. Pravilnik o kliničkim ispitivanjima lijekova i dobroj kliničkoj praksi / Ordinance on clinical trials of medicinal products and good clinical practice (Official Gazette No. 25/15 and 124/15)
9. Zakon o pravu na pristup informacijama/ Act on the Right to Access Information (Official Gazette No. 25/13 and 85/15)

10. Pravilnik o uvjetima, organizaciji i načinu obavljanja telemedicine / Ordinance on the conditions, organization and manner of practising telemedicine (Official Gazette No. 138/11 and 110/12)

Act on the Protection of Patients' Rights (Official Gazette 169/04 – Acts 19, 20, 21)

Protection of patients undergoing scientific research

Article 19

For scientific research on patients and patient involvement in medical education it is necessary to obtain explicit patient informed consent.

Informed consent, in terms of this Act, is a written, dated and signed patient's consent to participate in a particular scientific research or medical teaching granted on the basis of precise and understandable documented information on the nature, importance, consequences and risks of the research. For professionally incapable or minor patients, the consent is given by their legal representative or guardian.

The patient or his/her legal representative or guardian can, in the interest of the patient, at any time withdraw consent referred to in the paragraph 2 of this Article.

Article 20

Scientific research on patients can be conducted if all the following conditions are met:

1. there is no alternative of comparable effectiveness to research on humans;
2. the risks which may be incurred by that person are not disproportionate to the potential benefits of the research;
3. the research has been approved by the competent ethics committee in accordance with the law, after independent examination of its scientific merit, including assessment of the importance of the aim of the research, and multidisciplinary review of its ethical acceptability;
4. patients undergoing research have to be been informed of their rights and the safeguards prescribed by law for their protection;
5. the necessary patient informed consent referred to in Article 19, paragraph 2 of this Act. has been obtained.

Article 21

Scientific research involving patients deprived of legal capacity, patients without reasoning capabilities and underage patients can be undertaken if, besides conditions stated in the Article 20, items 1, 2, 3 and 4 of this Act, all of the following conditions have also been met:

1. the results of the research can be of actual and direct benefit to patient's health;

2. research with comparable efficiency cannot be carried out with patients who are capable of giving consent;
3. the consent of legal representative or a guardian has been obtained;
4. the patient is not opposed to research.

Notwithstanding the provisions of paragraph 1 of this Article, when the research can not produce results of direct benefit to the patient, the research may be granted under the terms of paragraph 1, items 2, 3 and 4 of this Article and subject to the following conditions:

1. the goal of the research is to achieve results that can benefit the patient or other patients in the same age group, or patients with the same disease,
2. research involves minimal risk and minimal burden for the patient.

5. Lisbon (Portugal)

Current legal framework at Portugal related to data protection principles, security of personal data, data subject's rights and safety:

Constitution of the Portuguese Republic

Article 35

Use of computerised data

1. All citizens have the right of Access to any computerised data relating to them and the right to be informed of the use for which the data is intended, under the law; they are entitled to require that the contents of the files and records be corrected and brought up to date.
2. The law shall determine what are personal data as well as the conditions applicable to automatic processing, connection, transmission and use thereof, and shall guarantee its protection by means of an independent administrative body.
3. Computerised storage shall not be used for information concerning a person's ideological or political convictions, party or trade union affiliations, religious beliefs, private life or ethnic origin, except where there is express consent from the data subject, authorisation provided under the law with guarantees of non-discrimination or, in the case of data, for statistical purposes, which does not identify individuals.
4. Access to personal data of third parties is prohibited, except in exceptional cases as prescribed by law.
5. Citizens shall not be given an all-purpose national identity number.
6. Everyone shall be guaranteed free access to public information networks and the law shall define the regulations applicable to the transborder data flows and the adequate norms of protection for personal data and for data that should be safeguarded in the national interest.

7. Personal data kept on manual files shall benefit from protection identical to that provided for in the above articles, in accordance with the law.

Act 67/98

Following the EU approach, Portugal has an omnibus data protection legal framework that generally applies to both private and public sectors, as well as to any sector of activity: the Data Protection Act, approved by Law 67/98 of 26 October 1998 (the Data Protection Act)., This legal framework transposes into Portuguese law Directive 95/46/EC of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. Further to the approval and entering into force of the General Data Protection Regulation (GDPR) on 24 May 2016, Portugal has now begun a process of adjustment to the profound changes that this new law will bring directly upon its application from 25 May 2018 onwards. Until then, the Data Protection Act will continue to apply.

CHAPTER II

Processing of personal data

SECTION I

Data quality and the lawfulness of their processing

Article 5

Data quality

1 – Personal data must be:

- (a) processed lawfully and with respect for the principle of good faith;
- (b) collected for specified, explicit and legitimate purposes and not further processed in a way incompatible with those purposes;
- (c) adequate, relevant and not excessive in relation to the purposes for which they are collected and/or further processed;
- (d) accurate and, where necessary, kept up to date; adequate measures must be taken to ensure that data which are inaccurate or incomplete, having regard to the purposes for which they were collected or for which they are further processed, are erased or rectified;
- (e) kept in a form which permits identification of their subjects for no longer than is necessary for the purposes for which they were collected or for which they are further processed.

2 – The storing of data for historical, statistical or scientific purposes for longer periods than in (e) above may be authorised by the CNPD at the request of the controller in the case of a legitimate interest.

3 – It shall be for the controller to ensure that the above numbers are complied with.

Article 6**Criteria for making data processing legitimate**

Personal data may be processed only if the data subject has unambiguously given his consent or if processing is necessary:

- (a) for the performance of a contract or contracts to which the data subject is party or in order to take steps at the request of the data subject prior to entering into a contract or a declaration of his will to negotiate;
- (b) for compliance with a legal obligation to which the controller is subject;
- (c) in order to protect the vital interests of the data subject if the latter is physically or legally incapable of giving his consent;
- (d) for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller or in a third party to whom the data are disclosed;
- (e) for pursuing the legitimate interests of the controller or the third party to whom the data are disclosed, except where such interests should be overridden by the interests for fundamental rights, freedoms and guarantees of the data subject.

Article 7**The processing of sensitive data**

1 – The processing of personal data revealing philosophical or political beliefs, political party or trade union membership, religion, privacy and racial or ethnic origin, and the processing of data concerning health or sex life, including genetic data, shall be prohibited.

2 – The processing of the data referred to in the previous number shall be permitted by a legal provision or by the authorisation of the CNPD when, on important public interest grounds, such processing is essential for exercising the legal or statutory rights of the controller or when the data subject has given his explicit consent for such processing, in both cases with guarantees of non-discrimination and with the security measures provided for in Article 15.

3 – The processing of the data referred to in 1 shall also be permitted when one of the following conditions applies:

- (a) when it is necessary to protect the vital interests of the data subject or of another person where the data subject is physically or legally incapable of giving his consent;
- (b) when it is carried out with the data subject's consent in the course of its legitimate activities by a foundation, association or non-profit seeking body with a political, philosophical, religious or trade union aim and on condition that the processing relates solely to the members of the body or to persons who have regular contact with it in connection with its purposes and that the data are not disclosed to a third party without the consent of the data subjects;

- (c) when it relates to data which are manifestly made public by the data subject, provided his consent for their processing can be clearly inferred from his declarations;
- (d) when it is necessary for the establishment, exercise or defence of legal claims and is exclusively carried out for that purpose.

4 – The processing of data relating to health and sex life, including genetic data, shall be permitted if it is necessary for the purposes of preventive medicine, medical diagnosis, the provision of care or treatment or the management of health-care services, provided those data are processed by a health professional bound by professional secrecy or by another person also subject to an equivalent obligation of secrecy and are notified to the CNPD under article 27, and where suitable safeguards are provided.

Article 9

Combination of personal data

1 - The combination of personal data not provided for in a legal provision shall be subject to the authorisation of the CNPD, requested by the controller or jointly by the corresponding controllers under Article 27.

2 - The combination of personal data must be necessary for pursuing the legal or statutory purposes and legitimate interests of the controller, must not involve discrimination or a reduction in the fundamental rights and freedoms of the data subjects, and must be covered by adequate security measures and take account of the type of data subject to combination.

SECTION II

Rights of the data subject

Article 10

Right to information

1 – The controller or his representative shall provide a data subject from whom data relating to himself are collected with the following information, except where he already has it:

- (a) the identity of the controller and of his representative, if any;
- (b) the purposes of the processing;
- (c) other information such as:

The recipients or categories of recipients;

Whether replies are obligatory or voluntary, as well as the possible consequences of failure to reply;

The existence and conditions of the right of access and the right to rectify, provided they are necessary, taking account of the specific circumstances of collection of the data in order to guarantee the data subject that they will be processed fairly.

2 – The documents supporting the collection of personal data shall contain the information set down in the previous number.

3 – If the data are not collected from the data subject and except where he already has it, the controller or his representative must provide the data subject with the information set down in 1 at the time of undertaking the recording of data or, if a disclosure to third parties is envisaged, no later than the time the data are first disclosed.

4 – If data are collected on open networks the data subject shall be informed, except where he is already aware of it, that personal data relating to him may be circulated on the network without security measures and may be at risk of being seen and used by unauthorised third parties.

5 – The obligation to provide information may be waived by a legal provision or decision of the CNPD on the grounds of State security and criminal prevention or investigation and also in particular for processing for statistical purposes or for the purposes of historical or scientific research, when the provision of such information proves impossible or would involve a disproportionate effort or if recording or disclosure is expressly laid down by law.

6 – The obligation to provide information under this Article shall not apply to the processing of data carried out solely for journalistic purposes or the purpose of artistic or literary expression.

Article 11

Right of access

1 – The data subject has the right to obtain from the controller without constraint at reasonable intervals and without excessive delay or expense:

- (a) Confirmation as to whether or not data relating to him are being processed and information as to the purposes of the processing, the categories of data concerned and the recipients or categories of recipients to whom the data are disclosed;
- (b) Communication in an intelligible form of the data undergoing processing and of any available information as to their source;
- (c) Knowledge of the logic involved in any automatic processing of data concerning him;
- (d) The rectification, erasure or blocking of data the processing of which does not comply with the provisions of this Act, in particular because of the incomplete or inaccurate nature of the data;
- (e) Notification to third parties to whom the data have been disclosed of any rectification, erasure or blocking carried out in compliance with (d), unless this proves impossible.

2 – In the case of the processing of personal data relating to State security and criminal prevention or investigation, the right of access may be exercised by means of the CNPD or another independent authority in whom the law vests verification of compliance with legislation on the protection of personal data.

3 – In the cases provided for in 6 above the right of access is exercised by means of the CNPD, securing the constitutional rules applicable, in particular those guaranteeing freedom of expression and information, freedom of the press and the professional independence and secrecy of journalists.

4 – In the cases provided for in (2) and (3), if communication of the data might prejudice State security, criminal prevention or investigation and freedom of expression and information or the freedom of the press, the CNPD shall only inform the data subject of the measures taken.

5 – The right of access to information relating to health data, including genetic data, is exercised by means of the doctor chosen by the data subject.

6 – If the data are not used for taking measures or decisions regarding any particular individual, the law may restrict the right of access where there is clearly no risk of breaching the fundamental rights, freedoms and guarantees of the data subject, particularly the right to privacy, and when the data are used solely for purposes of scientific research or are kept in personal form for a period which does not exceed the period necessary for the sole purpose of creating statistics.

Article 12

Data subject's right to object

The data subject has the right:

- (a) save where otherwise provided by law, and at least in the cases referred to in Article 6 (d) and (e), to object at any time on compelling legitimate grounds relating to his particular situation to the processing of data relating to him, and where there is a justified objection the processing instigated by the controller may no longer involve those data;
- (b) to object, on request and free of charge, to the processing of personal data relating to him which the controller anticipates being processed for the purposes of direct marketing or any other form of research, or to be informed before personal data are disclosed for the first time to third parties for the purposes of direct marketing or for use on behalf of third parties, and to be expressly offered the right to object free of charge to such disclosure or uses.

SECTION III

Security and confidentiality of processing

Article 14

Security of processing

1 – The controller must implement appropriate technical and organisational measures to protect personal data against accidental or unlawful destruction or accidental loss, alteration,

unauthorised disclosure or access, in particular where the processing involves the transmission of data over a network, and against all other unlawful forms of processing. Having regard to the state of the art and the cost of their implementation, such measures shall ensure a level of security appropriate to the risks represented by the processing and the nature of the data to be protected.

2 – Where processing is carried out on his behalf the controller must choose a processor providing sufficient guarantees in respect of the technical security measures and organisational measures governing the processing to be carried out, and must ensure compliance with those measures.

3 – The carrying out of processing by way of a processor must be governed by a contract or legal act binding the processor to the controller and stipulating in particular that the processor shall act only on instructions from the controller and that the obligations referred to in 1 shall also be incumbent on the processor.

4 – Proof of the will to negotiate, the contract or the legal act relating to data protection and the requirements relating to the measures referred to in 1 shall be in writing in a supporting document legally certified as affording proof.

Article 15

Special security measures

1 - The controllers of the data referred to in Articles 7 (2) and Article 8 shall take appropriate measures to:

- a) prevent unauthorised persons from entering the premises used for processing such data (control of entry to the premises);
- b) prevent data media from being read, copied, altered or removed by unauthorised persons (control of data media);
- c) prevent unauthorised input and unauthorised obtaining of knowledge, alteration or elimination of personal data input (control of input);
- d) prevent automatic data processing systems from being used by unauthorised persons by means of data transmission premises (control of use);
- e) guarantee that authorised persons may only access data covered by the authorisation (control of access);
- f) guarantee the checking of the bodies to whom personal data may be transmitted by means of data transmission premises (control of transmission);
- g) guarantee that it is possible to check *a posteriori* , in a period appropriate to the nature of the processing, the establishment in the regulations applicable to each sector of which personal data are input, when and by whom (control of input);

h) in transmitting personal data and in transporting the respective media, prevent unauthorised reading, copying, alteration or elimination of data (control of transport).

2 – Taking account of the nature of the bodies responsible for processing and the type of premises in which it is carried out, the CNPD may waive the existence of certain security measures, subject to guaranteeing respect for the fundamental rights, freedoms and guarantees of the data subjects.

3 – The systems must guarantee logical separation between data relating to health and sex life, including genetic data, and other personal data.

4 – Where circulation over a network of the data referred to in articles 7 and 8 may jeopardise the fundamental rights, freedoms and guarantees of their data subjects the CNPD may determine that transmission must be encoded.

Article 16

Processing by a processor

Any person acting under the authority of the controller or the processor, including the processor himself, who has access to personal data must not process them except on instructions from the controller, unless he is required to do so by law.

Article 17

Professional secrecy

1 – Controllers and persons who obtain knowledge of the personal data processed in carrying out their functions shall be bound by professional secrecy, even after their functions have ended.

2 – Members of the CNPD shall be subject to the same obligation, even after their mandate has ended.

3 – The provision in the previous numbers shall not exclude the duty to supply the obligatory information according to the law, except when it is contained in filing systems organised for statistical purposes.

4 – Officers, agents or staff who act as consultants for the CNPD or its members shall be subject to the same obligation of professional secrecy.

CHAPTER III

Transfer of personal data

SECTION I

Transfer of personal data in the European Union

Article 18**Principle**

Without prejudice to the tax or customs decisions of the Community, personal data may move freely between Member States of the European Union.

Article 20**Derogations**

1 - A transfer of personal data to a State which does not ensure an adequate level of protection within the meaning of Article 19 (2) may be allowed by the CNPD if the data subject has given his consent unambiguously to the proposed transfer or if that transfer:

- (a) is necessary for the performance of a contract between the data subject and the controller or the implementation of precontractual measures taken in response to the data subject's request;
- (b) is necessary for the performance or conclusion of a contract concluded or to be concluded in the interests of the data subject between the controller and a third party; or
- (c) is necessary or legally required on important public interest grounds, or for the establishment, exercise of defence of legal claims; or
- (d) is necessary in order to protect the vital interests of the data subject; or
- (e) is made from a register which according to laws or regulations is intended to provide information to the public and which is open to consultation either by the public in general or by any person who can demonstrate legitimate interest, provided the conditions laid down in law for consultation are fulfilled in the particular case.

2 – Without prejudice to paragraph 1 the CNPD may authorise a transfer or a set of transfers of personal data to a State which does not ensure an adequate level of protection within the meaning of Article 19 (2), provided the controller adduces adequate safeguards with respect to the protection of the privacy and fundamental rights and freedoms of individuals and with respect to their exercise, particularly by means of appropriate contractual clauses.

3 - By means of the Ministry of Foreign Affairs the CNPD shall inform the European Commission and the competent authorities of the other Member States of the European Union of the authorisations it grants under 2.

4 – The authorisations provided for in 2 shall be granted or derogated by the CNPD according to its own procedures and the decisions of the European Commission.

5 – Whenever there are specimen contractual clauses approved by the European Commission according to its own procedures, because they provide the adequate guarantees referred to in 2, the CNPD shall authorise the transfer of personal data made under such clauses.

6 – A transfer of personal data which is necessary for the protection of State security, defence, public safety and the prevention, investigation and prosecution of criminal offences shall be

governed by special legal provisions or by the international conventions and agreements to which Portugal is party.

The CNPD – Comissão Nacional de Protecção de Dados – is the Portuguese Data Protection Authority.

The CNPD is an independent body, with powers of authority throughout national territory. It is endowed with the power to supervise and monitor compliance with the laws and regulations in the area of personal data protection, with strict respect for human rights and the fundamental freedoms and guarantees enshrined in the Constitution and the law.

In exercising its functions the CNPD shall lay down obligatory decisions against which challenges or appeals may be lodged with the *Tribunal Central Administrativo* [Central Administrative Court].

The public and private bodies shall cooperate with the CNPD by providing it with all the information requested in carrying out its responsibilities.

The duty to cooperate shall be ensured in particular when in order to exercise its functions in full the CNPD has to examine the computer system and personal data filing systems, and all documentation relating to the processing and transmission of personal data.

The CNPD or its members and the staff delegated thereby have the right of access to the computer systems supporting the data processing and the documentation referred to in the previous number, within the scope of its duties and responsibilities.

Act 41/2004

of 18 August

as revised by Act 46/2012 of 29 August Act transposing into the Portuguese legal system the ePrivacy Directive 2002/58/EC, as revised by 2009/136/EC.

Article 5

Storage and access to information

1 - The storage of information and the possibility to access to information stored in the terminal equipment of a subscriber or user is only allowed if they have given their consent, based in clear and comprehensive information in accordance with the Act on the Protection of Personal Data, in particular the processing objectives.

2 - The provisions of this article and the previous article does not prevent any technical storage or access:

- a) the sole purpose of transmitting a communication over an electronic communications network ;
- b) strictly necessary for the supplier to provide a service of the information society expressly requested the subscriber or user.

Act 15/2014**of 21 March****Rights of Health Services users****Article 5****personal data and protection of privacy**

1 - The user of health services is the rightholder of the protection of personal data and individual privacy.

2 - It is applicable to data processing in the field of Health Article 5 of Act No. 67/98 of 26 October, ensuring, namely, that the data collected are adequate, relevant and not excessive for the purposes continued.

3 - Users of health services is the rightholder access to personal data collected and may require rectification of inaccurate information and the inclusion of information totally or partially missing under Article 11 of Act No. 67/98 of 26 October.

Article 6**Secrecy**

1 - The user of health services has the right to confidentiality on your personal data.

2 - Health care professionals are bound by duty confidentiality regarding the facts of which they are aware in the exercise of their duties, except law provides otherwise or judicial decision requiring the his revelation.